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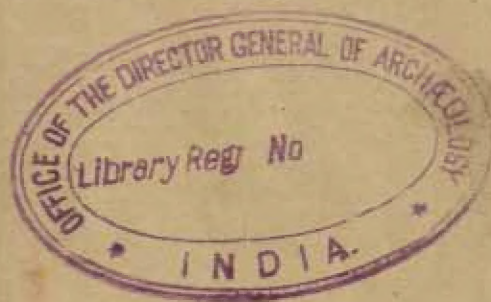
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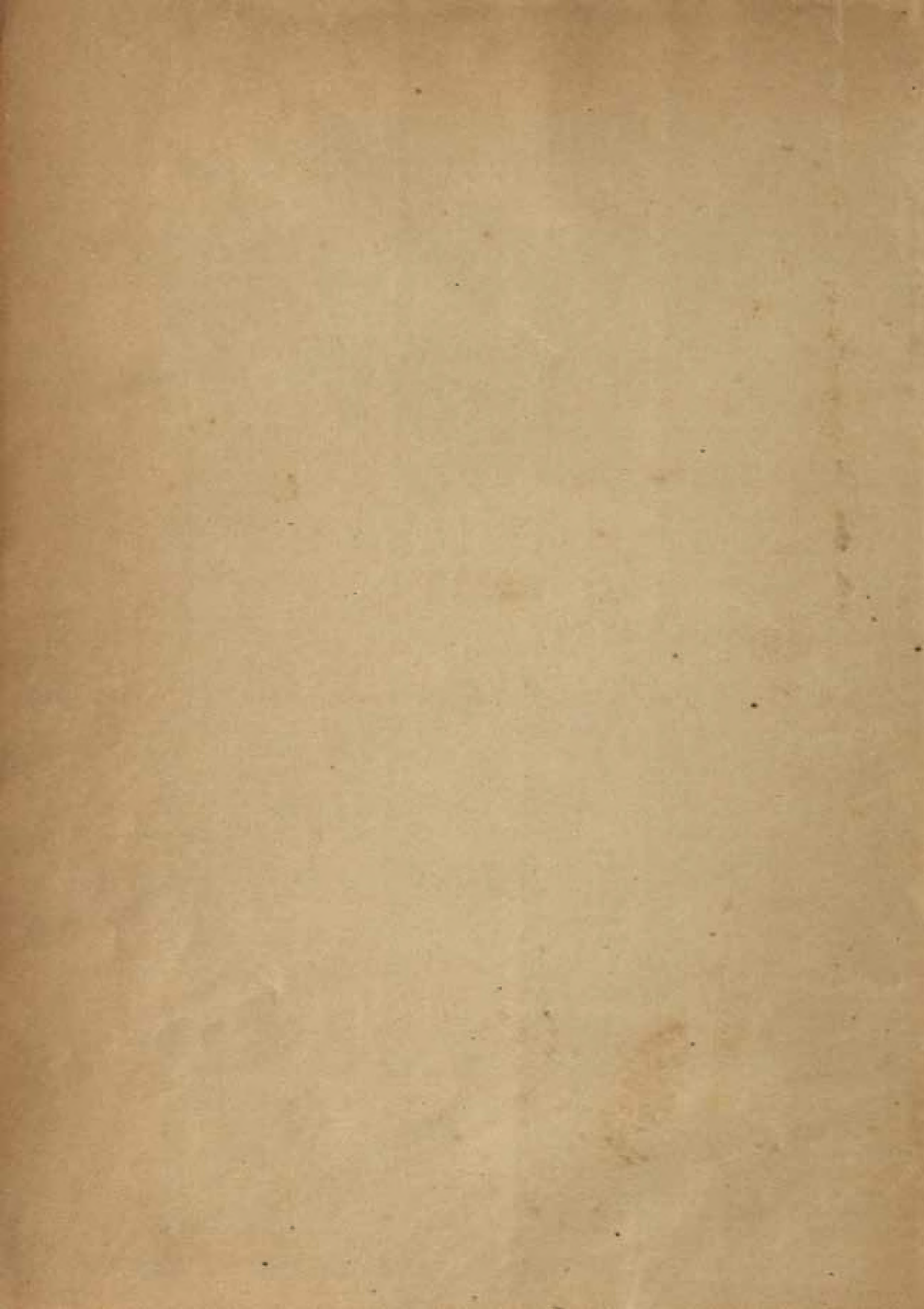
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Antiquity

A Quarterly Review of Archæology

VOL. I No. 1

MARCH 1927

Editorial Notes

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ANTIQUITY will attempt to summarize and criticize the work of those who are recreating the past. Archaeology is a branch of science which achieves its results by means of excavation, field-work and comparative studies ; it is founded upon the observation and record of facts. Today the accumulated riches of years lie to our hand, and the time is ripe for interpretation and synthesis. We are emerging from the archaic stage, and we are able at last to see single facts in their relation to an organic whole—the history of Man. Simplification supervenes, and the outline of the past becomes intelligible. Here and there attempts are made to summarize a period or interpret a group of facts ; but they seldom reach the general public, and remain buried in obscure publications. ANTIQUITY will publish creative work of this character.

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The Editor has secured the willing support of specialists who will contribute popular but authoritative accounts of their own researches. Knowledge thus acquired is alive, for it is derived at first hand from things, not merely compiled from books. Each article will be but a tiny facet of the whole ; for our field is the Earth, our range in time a million years or so, our subject the human race.

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We shall keep our readers informed about important discoveries made and books published ; and we shall warn them of mare's nests. Many so-called discoveries are nothing but newspaper "stunts"; many best-sellers are written by quacks. The public is humbugged, but it is nobody's business to expose the fraud. Such books are ignored by the learned world. Reviewers in literary papers are therefore tolerant, if not favourable, for they hear no word of dissent ; there is a demand for stuff like this, and the case goes by default. Every page may contain gross errors and wild guesses which pass unchallenged. The antidote is to create a sound and informed body of opinion, and to make it articulate.

Epoch-making work, however, is being done throughout the world ; and we cannot devote much space merely to destructive criticism. It will be more profitable to appraise the good than to decry the bad. Let us briefly survey the field. In England we are beginning at last to learn something about the Neolithic period. Villages have been discovered near Abingdon and on Windmill Hill (see p. 104). We can even begin to classify the pottery of the period—though twenty years ago not a single type was recognized. We are now, therefore, no longer dependent upon the scanty sherds that may be found in Long Barrows. At the moment interest is centred in this period.

Abroad, by far the most important discoveries are those of Sir John Marshall in India (see p. 113), which rival the classic finds of Rawlinson, Schliemann and Evans. A new civilization is revealed, with writing and all the appurtenances of an advanced culture. In Egypt Dr Reisner has found the Tomb of the mother of Cheops, the builder of the Great Pyramid, which was built between 2900 and 2800 B.C. according to Breasted's chronology. It is intact and un plundered, but has suffered more than Tutankhamen's at the hands of time. Objects of the 3rd and 4th Dynasties are so rare that a find of this kind is of supreme importance, nor could the work of clearance be in better hands than Dr Reisner's. China is at last yielding up the secrets of her past. Palaeolithic and neolithic remains have been found there ; Dr Franz will describe these. An American expedition is setting out to explore the Niger bend—a most promising region ; practically nothing is known of its

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archaeology. South Africa is rapidly solving her own palaeolithic riddles, which are closely connected with the main problem of man's ancestry. Central Asia may yield sensational evidence of the same kind when the American expedition, so ably organized and led by Dr Roy Chapman Andrews, can take the field again. A determined effort is being made by the British Museum to explore the vast ruins of Lubaantun in British Honduras. Mediterranean lands are attracting less attention than they did twenty years ago. But there will be a revival of interest if Herculaneum and the Hippodrome at Constantinople are really to be excavated. Both may yield masterpieces of classical art. Syria and Palestine are beginning to return a rich harvest to British, French and American excavators. In Babylonia, the excavation of Kish and Ur is proceeding, and the roots of civilization are being uncovered.



Excavation remains the most valuable instrument of discovery we possess. It may be supplemented by field-work and air-photography. The uses of air-photography are only beginning to be properly appreciated, and they are many. Air-photographs reveal lost or unsuspected remains, such as "Woodhenge" and the Stonehenge Avenue; they show the excavator where to dig for walls, ditches, or pit-dwellings; they reduce a tangle of earthworks to order and may prove their relative ages; they are invaluable to the lecturer and writer to illustrate his thesis. In this last respect their uses will be apparent to readers of the present number. We intend to use air-photographs, whenever possible, for the purpose of illustrating articles, and, reversing the process, to select some of the best available photographs for use with explanatory text and diagrams. Amongst the most startling are some taken in Iraq which, for the most part, are unpublished.



We shall not confine ourselves too rigidly within the conventional limits of archaeology. The past often lives on in the present. We cannot see the men who built and defended the hill-top settlements of Wessex; but we can learn much from living people who inhabit similar sites to-day in Algeria. From such, and from traditional accounts of Maori forts we learn, by comparison, to understand the dumb language of prehistoric earthworks. Thus to see the past in the

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light of the present is to give it life and substance ; this is the old anthropological method of Tylor and Pitt-Rivers and it has too long been neglected by archaeologists. Some familiarity with the habits and outlook of primitive communities is essential. In fact, your 'savage' is himself the ideal archaeologist and excavator ; for he is familiar with primitive appliances, and can often explain the use of objects which baffle the 'expert.' We have seen such a one answer a question by producing, from his own village, a modern appliance—in this instance a kind of hoe—which was used for the same purpose as, and obviously evolved from one, the one he had dug up.



Never before has so much been known about the past ; never has the desire of knowledge been greater. If the world is our playground, it is also our audience. We employ methods of research undreamt of before ; we call in the aviator, the photographer, the chemist, the astronomer, the botanist, to assist us. What is to be the end of it all ? What new idea is to emerge from all this vast accumulation of facts and give them coherence ? Has it already emerged ? We shall return to this, the most important subject of all.



The universal interest in the past is perfectly natural. It is the interest in life itself. There was a time when archaeology was voted a dull subject, fit only for dry-as-dusts ; yet it was not the subject that was dull, but its exponents. Those days are over. If proof were needed it might be found in the welcome with which our preliminary appeal has been received in all parts of the world. We shall do our utmost to justify the good wishes of our correspondents ; we have a policy and shall carry it out. We ask only for time to accomplish it. It is barely a year since the idea of founding ANTIQUITY occurred to us, and our contributors are all busy men. But we have made an excellent start and future progress is assured. To those who have made this possible we tender our most hearty thanks.

PLATE I

WALL



WALL

1.—WALL ON SAMSON FLATS, TAKEN FROM THE NORTH HILL OF SAMSON
Pk. Gibson, St. Mary's, Scilly



2.—PARTIALLY SUBMERGED STONE CIRCLE, ER LANIC, BRITTANY
Pk. Dr R. C. C. Clay

facing p. 5

Lyonesse

by O. G. S. CRAWFORD

ONCE upon a time (so tradition says) a region of extreme fertility lay between the Scilly Islands and Cornwall. This land was called Lyonesse ; and where now roll the waters of the Atlantic there once stood prosperous towns and no less than a hundred and forty churches. The rocks called the Seven Stones, seven miles west of Land's End, are said to mark the site of a large city. This country was overwhelmed by the sea, and the sole survivor, one Trevilian, escaped destruction only by mounting a swift horse and fleeing to the mainland.

Such, stripped to the bone, is the famous legend of Lyonesse. Had it any real basis in fact, or is it merely an invention of the "dreamy Celt"? There are good reasons for believing that the substance of the legend is true, that within prehistoric times there did actually exist land which is now covered by the sea, and that it has been gradually overwhelmed. In one respect only does the modern critic disagree with tradition. He believes that Lyonesse was the Scilly Islands themselves, not a completely vanished region between them and Cornwall ; and that what is now an archipelago of islands was a single large island, surrounded perhaps by a few rocky islets.

The evidence, both archæological and historical, is very strong. It was my good fortune to be staying in St. Mary's last year, at the time of the spring tides. One day I crossed in a boat to the uninhabited island of Samson ; and from the highest point I observed, stretching across the uncovered sandflats between Samson and Tresco, a long straight line of stones. (Plate I, fig. 1). I had not time to descend and make a closer investigation ; but when thinking the matter over on my return, I regretted it ; for I could think of no natural explanation of the stones. Further, it seemed probable that this was indeed one of those walls described in 1753 by old Borlase.¹ "The flats," he says, "which stretch from one island to another, are plain evidences

¹ The Rev. Mr Wm. Borlase, M.A., F.R.S. ; *Of the Great Alterations which the Islands of Scilly have undergone since the time of the Ancients*. *Philosophical Trans.*, Vol. xlviii. 1753. (*Abridgements*. Vol. x, 1809). The passage quoted in the text is quoted also by Hunt in *Popular Romances*, p. 193.

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of a former union subsisting between many now distinct islands. The flats between Trescaw, Brehar and Samson¹ are quite dry at a spring tide, and men easily pass dry-shod from one island to another, over sand-banks (where, on the shifting of the sands, walls and ruins are frequently discovered) on which at full sea, there are 10 and 12 feet of water." The day following next but one after my first visit to Samson was the day of lowest spring tides (16 March 1926) and it seemed a chance not to be missed. Accordingly I chartered the boat again, and accompanied by Mr Alexander Gibson with his camera, landed again on Samson. Our programme was to photograph the line of stones first from the high ground of Samson, then at closer quarters on the sands; and afterwards to walk across to Tresco and thence to the island of Bryher. Such a "submarine" walk is only possible at low spring tides.

We found, on walking out across the sands, that the line of stones was undoubtedly the remains of a wall of human construction. (Plate II, fig. 1). It consisted of a number of boulders and stones of about the size and shape of a milestone, some of them still standing upright. All round on either side of the wall were scattered the smaller stones which once filled the spaces between the larger uprights. Elsewhere the sands were almost bare. The fact that some of these stones still remained standing proved conclusively that the thing was artificial, but indeed its general appearance left no doubt whatever in our minds with regard to this.

It was one of those thrilling moments which occasionally occur in the life of an archæologist. Here before us was tangible proof that the land had sunk since prehistoric times; for no one makes walls like this below high water mark. While Mr Gibson was taking photographs, I wandered about on the sands and picked up a few flint flakes (Fig. 1). Most of these were lying on the tide-scoured sand below the ordinary *low* water mark. Their edges, originally sharp, have been smoothed by the action of the sand and water, so that they have the appearance of gravel-rolled flints. They are quite white and the surface is matte. A few are illustrated here.



Fig. 1. Flint Flakes picked up on Samson Flats.

¹ Samson Flats falls on sheet 87 NW. of the 6-inch O.S.

PLATE II



1.—THE SUBMERGED BOULDER-HEDGE ON SAMSON FLATS
Ph. Gibson, St. Mary's, Scilly



2.—MODERN "HEDGE" OF BOULDERS NEAR WATERMILL, ST. MARY'S, SCILLY
Ph. Gibson, St. Mary's, Scilly

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The wall was about 250 yards long, and ended at a bare, rocky eminence called Black Ledge. On the further (north-eastern) side of this rock, a line of stones was visible, half covered by the sea even at this exceptionally low tide. I waded out to it in the hope of being able to discover whether it was another of these walls; but the water was over my knees and the tide was on the point of turning, so that I could not satisfy myself on this point.¹ We duly reached Tresco—though neither of us dry-shod!—but the tide was now rising and we were too late by about ten minutes to continue on foot across to Bryher. My reason for wishing to visit that island was that on the 25-inch map there are marked some apparently very perfect examples of prehistoric stone walls. We were not disappointed. We found them on the bleak hill which forms the northern part of the island. They were precisely similar in character to the submerged wall we had just visited.

Such prehistoric walls occur on all the larger islands, and on some of the smaller ones which are not now inhabited. A peculiar feature is that at frequent intervals along them occur small round cairns of stones. I observed these on St Mary's, on Gugh, and on Samson, as well as on Bryher, where the cairns are marked on the 25-inch map. They are said to occur also on similar walls on the moors of Cromar, in Aberdeenshire. The walls themselves are clearly field-walls. Even to-day the field-walls of the Scilly Islands are made in exactly the same way. (Plate II, fig. 2). I happened to see one being built. Large upright stones are set up some few yards apart, and the space between is filled with smaller stones. The materials are obtained, whenever possible, from the area to be enclosed. The task of building these "stone hedges," as they are called, is not so simple as it might appear to be; considerable skill is required, and no doubt the inherited experience of generations has been handed down by tradition from prehistoric times.

The stone hedges of abandoned fields are to be seen on the moorlands everywhere in Great Britain. They are common in Wales, where, too, the old methods of construction are still employed. There, a wide double row of upright stones is set up, and the space between—often as much as six feet—is gradually filled in with smaller stones picked from the field itself. When the wall is left to fall into ruin, this core of smaller stones spreads out on either side of the

¹ Since writing this, Mr. Alexander Gibson reports that he has been told of similar submerged walls between the west coast of Samson and White Island, and off the west shore of Tresco.

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uprights, and they too gradually collapse, till only a few are left standing. In some parts of Wiltshire, where the downs are covered with sarsen stones, these were set up round the prehistoric field. Many such are to be seen in the lynchets of Celtic fields on the Marlborough downs. The Celtic fields on the hills round Bath were enclosed by dry walls, set with a few large bonding uprights (called "grounders" in Cornwall); but owing to the flat cleavage of oolitic limestone, the construction was much easier, and the walls consisted, for the most part, of quite small stones, as they do to-day.

An interesting account of the construction of these boulder-hedges in Cornwall is given by Hunt in his fascinating *Popular Romances of the West of England*.¹ Some echo of prehistoric times lingered even in the last century. Tom, the Giant, was a great hedger, when in the mood for work; "then, if he found any of his neighbours 'hedging,' he would turn to and roll in all the largest rocks from over the fields, for 'grounders.'"

From another legend we learn how Tom came to the castle of another giant. "This place was hedged in with great rocks. . . . they call them the Giant's Hedges to the present day." He was returning from market, fortified by three or four gallons of beer, and in a somewhat truculent mood, it would seem, for he determined to fight the giant. He opened the gate and drove his two oxen and the waggon through. He drove for a mile without seeing anything except the fat cattle of all sorts in the fields. At last he came to a pair of gates in a high wall, which was close to and surrounding the giant's castle. There was no passing round these, as there were deep ditches on either side of these gates. In due course he met the giant and killed him, succeeding to his wife and cattle and all his possessions. Have we not here a faithful description of a typical prehistoric hill-fort surrounded by its fields and pasture grounds?

But to return to the Scillies. The boulder-hedge on Samson flats is plainly just such a hedge as those I have described. It cannot possibly have been made when the land stood at its present level, for it is completely submerged except at ordinary low tide. The question may be asked—How comes it to have been preserved? Why has it not been destroyed by the sea waves? The answer is, I think, supplied by the *Geological Memoir*² on the Scilly Isles; but I must first explain

¹ Third ed., London, 1881, pp. 56, 60.

² George Barrow, F.G.S. *The Geology of the Isles of Scilly. Memoirs of the Geological Survey of England and Wales* (on sheets 357 and 360), H.M.S.O., 1906. 18

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that Samson flats lie within the inland sea of Scilly, where the huge Atlantic rollers never come. Erosion, therefore, is less violent here than round the outer shores of the archipelago. The bed of the shallow inland sea is uniformly sandy; and it is suggested by the author of the *Geological Memoir* that the presence of all this sand needs some explanation. He considers that it was originally formed by the action of wind—that the sand flats are, in fact, submerged sand dunes. It seems therefore probable that the prehistoric walls were buried in sand before submergence; and that this mantle of sand protected them from destruction by the waves. The tidal scour has now removed the sand, but it has little erosive power against the heavy boulders of which the walls were made.

The history of Samson Flats seems to have been as follows:—originally the whole archipelago stood at a higher level than at present, consisting of one or more large islands with an outer fringe of reefs and islets. The area now occupied by the inland sea was a level plain covered with a thick layer of glacial deposit, resting upon the granite rock and forming a region of relative fertility. This would have been the most “habitable” part of the region, because of the greater depth of soil, and because it was sheltered on all sides by higher ground. Here lived the prehistoric builders of the submerged walls. Here were their huts and the pasture grounds of their flocks and herds, separated by the walls whose remains have so strangely been preserved beneath the sea.

But all the time the Atlantic was steadily pounding the outer islets into sand, and the wind carrying this sand inland from the west, to fall on the lee side of what is now Samson. At last the whole of the inland plain was buried. Then the land sunk—it may have been slowly sinking all the time—and the shores assumed something like their present outline.

But not quite their present outline; for everywhere to-day, even round the calmer shores of the inland sea, wave-erosion is proceeding. The soft blanket of glacial deposit—a gritty clay or gravel—is being eaten into bays; sand dunes are forming again; and the habitable area is being yet further reduced. The smaller islets are rapidly losing their glacial mantle, and with it go the grass and flowers. Even the larger islands will one day be split up into barren reefs by the waves; for when once glacial soil is gone, the most flowery isle will be as desolate as Mincarlo.

That England stood at a higher level in prehistoric times has, of

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course, long been known. Everywhere along the coast may be found remains of submerged forests exposed at low tide. Flint implements have frequently been found among the roots of the trees; and in Essex Mr Hazzledine Warren found a skeleton buried below high water mark. With true insight Mr Warren called this the "Lyonesse" surface, although the facts here brought forward for the first time were then quite unsuspected. Such a forest may still be seen in Mount's Bay, between Penzance and St. Michael's Mount; it is certain that the land stood at a higher level when it flourished here. At low tide flint flakes of human manufacture have been picked up in it; and a piece of wood, humanly fashioned, has been found in Marazion marsh at least 12 feet below mean sea level. Human remains, including human skulls and bronze implements, have been found in the submerged beds of the valleys. All these facts prove subsidence; they have been fully dealt with by the late Mr Clement Reid in his book on *Submerged Forests*.¹

A similar subsidence has taken place in Brittany, and in the Channel Islands during prehistoric times. In Jersey there is a fine submerged forest in St. Brelade's Bay, and it is even said that prehistoric burial cists or chambers occur below high water mark. Unfortunately the precise archæological period to which these remains belong is still uncertain.

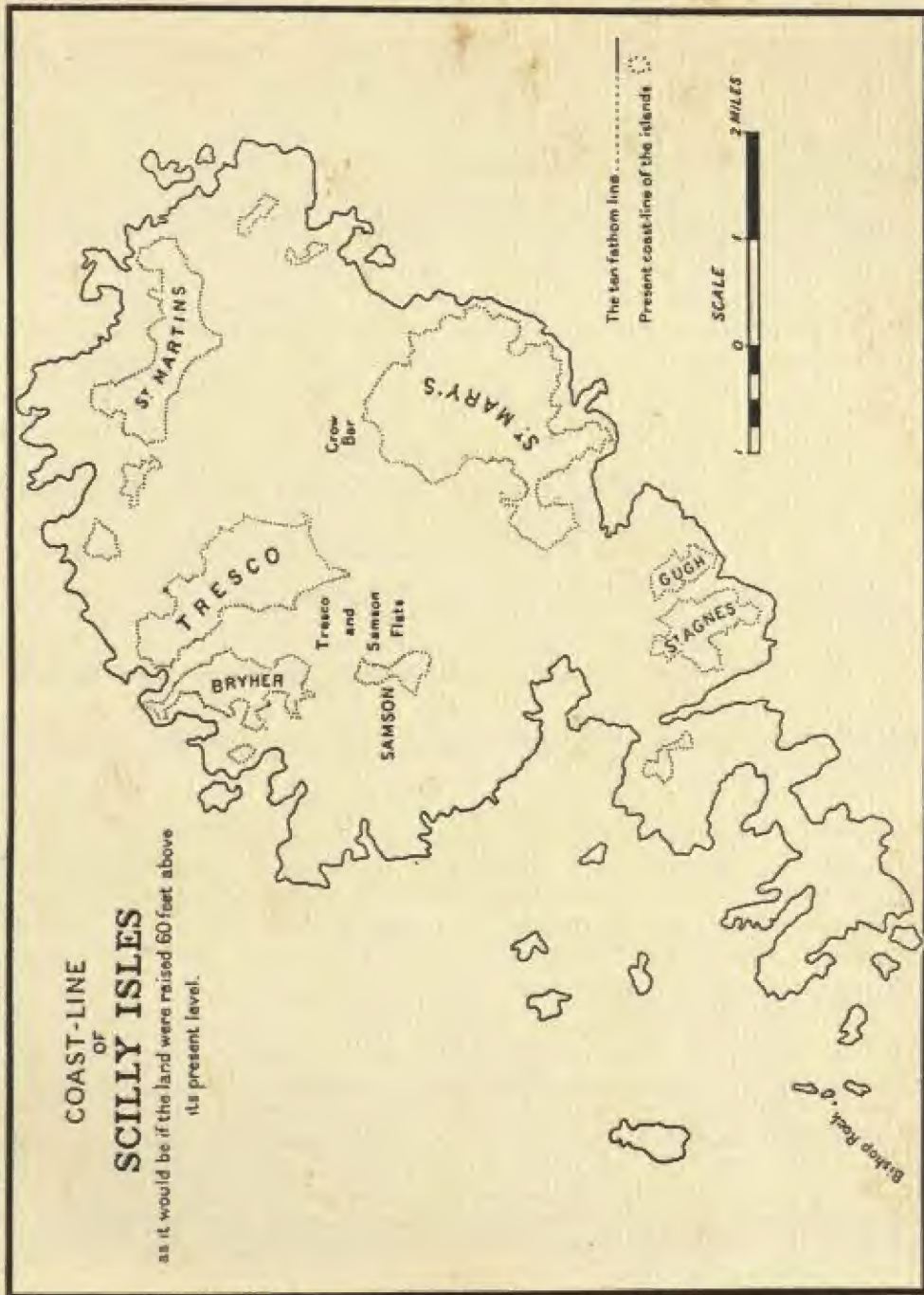
The evidence from Brittany is much clearer. What could be more startling than the half submerged Stone Circle² on the island of Er Lanic illustrated on plate 1, fig. 2. Could more sensational evidence of subsidence be found anywhere? Some of the stones are standing upright still after all these years; but some, which had fallen, have been set up again in their original holes.

That the Scilly Islands were once a single large island—or one big one with a few islets or reefs—may therefore be taken as proven; and it may further be said that part at least of this submergence took place within prehistoric times. It was part of the same movement as that which affected the coasts of Cornwall and Brittany. How long it is since the Scilly Islands were split up is a difficult matter to determine. That they were still a single island as late as the third century of the Christian Era is suggested by the fact that Solinus, writing about

¹ Clement Reid, F.R.S. *Submerged Forests. Cambridge Manuals of Science and Literature*, 1913.

² A good illustration of the Circle was published in *The Sphere*, 21 August 1926.

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240 A.D. speaks of them in the singular—*Siluram insulam*.¹ The only other ancient writer who mentions Scilly by name—Sulpicius Severus, 400 A.D.—also refers to it in the singular. It would be dangerous to rely too much upon this evidence, but it is at any rate not in conflict with the evidence from other sources.

Probably my readers have been hoping to learn the date of the wall or boulder-hedge on Samson Flats. How old is it? Alas, at present it is impossible to say. All that one can say is, that up to the present, there is no evidence that either the Scilly Isles or Cornwall were inhabited at all before the Bronze Age, and that the wall may have been made therefore at any time from the Bronze Age to the beginning of the present era. (It is hardly likely to be later). It may, of course, be older, for, let it be observed, I do not say that Cornwall and the Scilly Isles were uninhabited before the Bronze Age, but that there is no evidence that they were inhabited, and that is a very different thing. The only proof that they were inhabited before the Bronze Age would be the discovery of pottery or other remains which can be proved to belong to an older period; and those remains have yet to be recorded. Stone implements were made and used throughout the Bronze and Iron Ages, and the absence of metal on an excavated site proves nothing. The West of England abounds in prehistoric remains, but it has yet to produce an archæologist of the first rank. The scientific study of these remains has not yet begun, though Lukis and Borlase were both excellent archæologists in their day.

The Legend of Lyonesse may, then, be true; but is it a direct traditional inheritance of the submergence? I think not. It is more likely that it has arisen in later times, through the acute observation of fishermen and other unlettered folk. It is a common mistake to suppose that an "uneducated" person is less intelligent or less accurate in observation than one who has acquired book-knowledge. It would probably be more true to say that he is more intelligent and a better observer, because his mind is clearer. That certainly holds good so far as my limited experience of "primitive" people goes. Provided they are quite unspoilt by book-learning, their observations

¹ His actual description is worth quoting:—"A tempestuous channel separates the island of Silura from the coast occupied by the British tribe of the Dumnonii. Its inhabitants even to-day have primitive customs; they do not recognise money; they give and exchange goods; they obtain the necessaries of life by barter instead of by purchase; they worship gods; and men and women alike claim to foretell the future." *Polyhistor*., chap. xxiv.

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are generally trustworthy and their deductions sound, up to a point. In this instance, it seems to me probable that the legend arose somewhat after this fashion. Fishermen and others observed these walls (they still observe them and have told me of the existence of others that I have not yet been able to go and see). They recognize that they are of human making, and that they could not have been made when the land stood at its present level. They infer, quite correctly, that the land must have sunk. So far the inference is correct, and the process of reasoning could not be improved upon by the most eminent "highbrow." But the science of geology is a closed book to them; they do not realize the infinite slowness of Nature, and they bring in a cataclysm to account for the submergence. Our ancestors did the same elsewhere, and they were accounted wise men in their day; but their outlook was arbitrarily confined, and their conclusions therefore were erroneous. It was not—at least it need not have been—a cataclysm which submerged Lyonesse; such a cataclysm, involving a drop of so many feet, would be unique in history. It would have been accompanied by an earthquake that would have shattered every building and monument in Europe. No, it is unnecessary to assume any violent disturbance; for the ordinary movement of the crust will account quite well for the facts.

Thus, too, it was incorrect to infer—if the real authors of the legend ever did, which I doubt—that any land ever wholly disappeared between Land's End and the Scillies. If the preceding argument is correct, the Seven Stones must once have been a habitable island, now reduced to a bare skeleton by subsidence and the erosion of its glacial covering. But it is unlikely—though perhaps not impossible—that the islands were once connected with the mainland. Inference here passes into the realm of speculation.

We meet with a precisely similar case of folk legend in the heart of England; and it probably arose from similar observations of fact imaginatively interpreted. In Shropshire are many meres or small lakes. On the shores of some of them there were prehistoric lake-dwellings; and in one, at Ellesmere, the causeway leading to the settlement (now submerged) has been met with.¹ Of these meres many folk tales are told, recalling times when the site was occupied by a palace, town, or church; and it is said that the bells of the

¹ *Shropshire Folklore*, edited by Charlotte Sophia Burne, from the Collections of Georgina F. Jackson. London, 1883, p. 77.

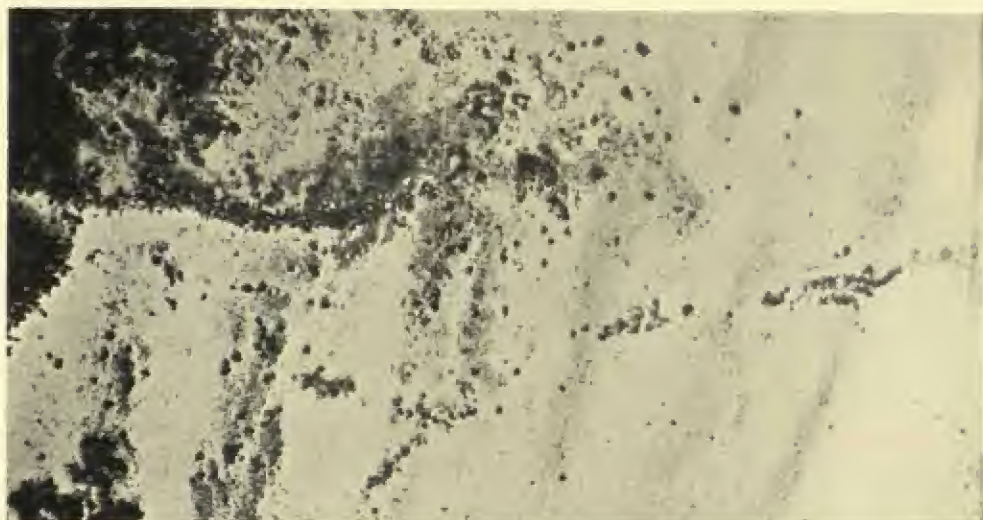
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church still lie there, and have even been seen and heard. What is this but a fisherman's inference from the observation of a causeway, "old crocks," wooden piles and such like, encountered while fishing? (It must be remembered that only since the universal use of china for domestic purposes has the villager ceased to recognize potsherds as evidence of occupation; for the broken pots of 200 years ago were not vastly unlike those of prehistoric times, and he knew what these were when he saw them).

Every ancient site doubtless once had its legend to account for its origin. Some doubtless contain an echo of times past, however faint; and others may have arisen from crude rationalization. The Legend of Lyonesse undoubtedly contains a vestige of antiquity, though the land may have sunk with infinite slowness, and Trevilian have hastened in vain.

Thanks are due to the officers of No. 10 Group, R.A.F., and No. 480 Flight, Calshot, who are responsible for the taking of the air-photographs reproduced on plate III. These photographs bring out the artificial nature of the wall very clearly, and indicate the existence of short lengths of others with a different alignment. The photographs are reproduced with the permission of H.M. Stationery Office, and their publication has been approved by the Air Ministry.

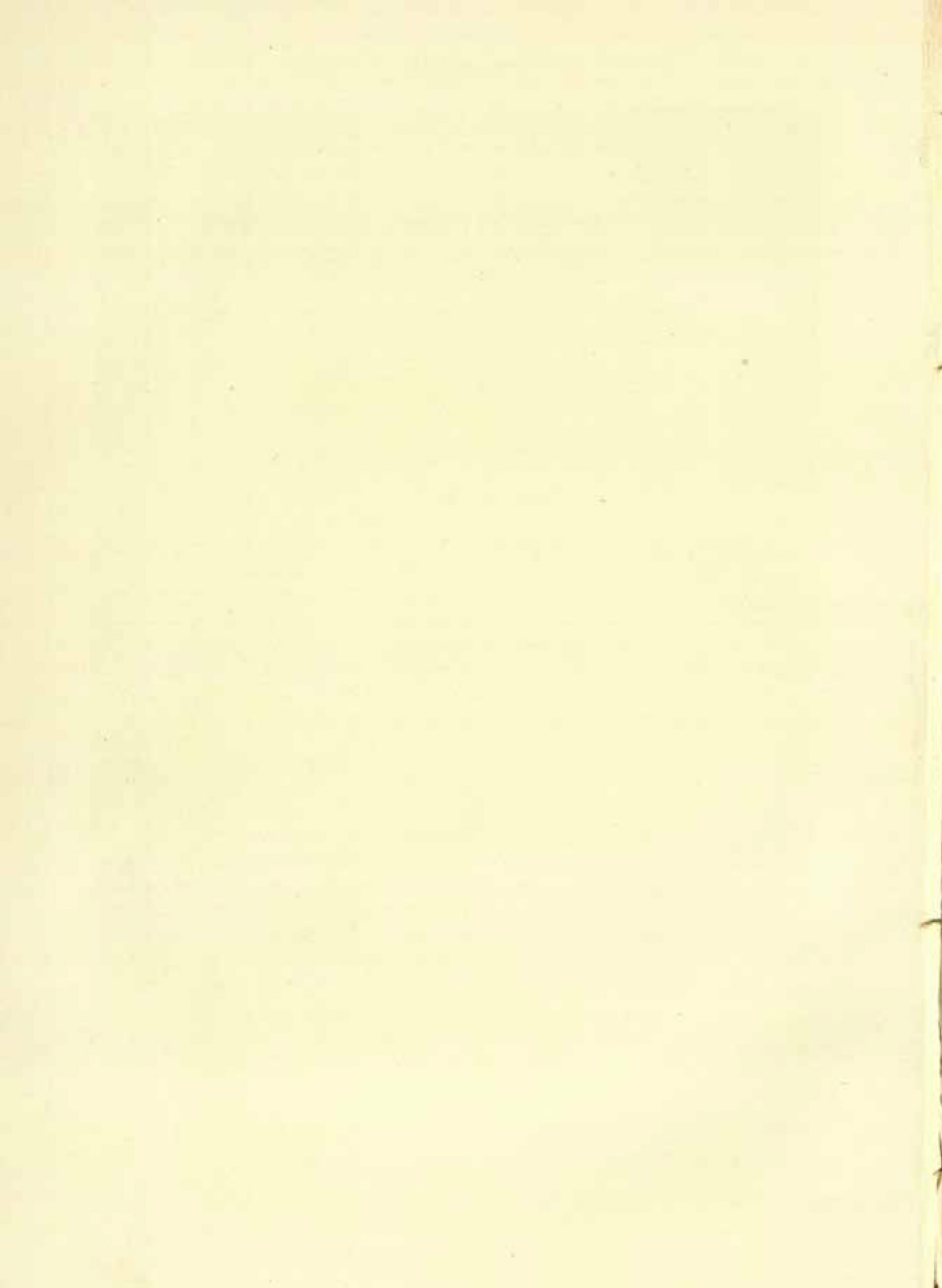
PLATE III



SUBMERGED WALL ON SAMSON FLATS, TAKEN FROM THE AIR
Ph. by 480 FLIGHT, CALSHOT

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facing p. 14



The Roman Frontier in Britain

by R. G. COLLINGWOOD, F.S.A.

IT was Augustus who first realized that the Roman Empire could not go on expanding for ever. Horace could write

*Caelo tonantem credidimus Iovem
Regnare; praesens Divus habebitur
Augustus adiectis Britannis
Imperio gravibusque Persis;*¹

but a very real part of Augustus' claim to grateful veneration lay in the fact that he made up his mind to leave Britons and Parthians alone—to seek in them not new subjects, but peaceful and respectful neighbours. *Coercere intra terminos imperium*² was the advice he left to his successors; and in principle they never departed from it. Claudius might conquer Britain, Trajan Mesopotamia and Dacia; but these were "rectifications," as we say nowadays, not obliterations, of the imperial frontier.

For the frontier of the Empire, as Augustus left it, was far from perfect. Tiberius, concerned above all to maintain intact the system created by Augustus, played here, as everywhere, a waiting game, and did not meddle with the Augustan frontiers. But his successor Gaius, or "Caligula," may have contemplated a conquest, or at least an invasion, of Britain; he certainly made a demonstration on the shore of the Channel.³ And Claudius, the fourth Emperor, took the decisive step. Britain and Gaul were too close together, too intimately linked by geography, blood and civilization, to permit of an unfortified Channel frontier. Southern Britain was already in part Romanized, and the flag followed trade.

The Claudian conquest was well-organized and proceeded at first smoothly. There is some reason to think that, after the first three campaigns, a temporary frontier-line was drawn across the country

¹ *Odes* iii, 5.

² Tacitus, *Ann.* i, 11.

³ Suetonius, *Gaius*, 46.

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diagonally from South Devon through Bath, Cirencester and Leicester to Lincoln; this line is marked by a road, the so-called Fosse, which is difficult to explain on any other hypothesis, and there is a famous passage of Tacitus which seems actually to describe its construction as a frontier-line.¹ If so, we have here the first Roman frontier in Britain. There is nothing surprising in the fact that it consists simply of a road studded with forts. *Limes*, the Latin for a frontier, means a road long before it means a wall or earthwork. Originally it is anything that "goes across,"² and is especially used for the path or balk between two strips of ploughed land. As a military term it signifies a strategic road, driven through enemy country as a means of conquering it; we find this meaning plainly set forth in Tacitus (e.g. *Ann.* i, 50; ii, 7), Frontinus (*Strat.* 1, 3) and elsewhere. And one of the earliest Roman conceptions of a frontier was that it should consist merely of such a military road.

After this began a fresh forward movement, into whose vicissitudes we need not here enquire, for its various stages were not, so far as we know, marked by the creation of definite frontier-lines. We can only conjecture that temporary frontiers were from time to time established and cancelled again; but there is only one to which we can actually point. That is Agricola's line established between the Forth and the Clyde to mark the point reached by him, during his great northward advance, in or about the year 80. Tacitus (*Agricola*, xxiii) tells us of its construction, and its relics have been found in a number of different places, where smallish earthen forts associated with Flavian objects have been found underlying the larger and more solid structures built two generations later by Lollius Urbicus.³ It seems very clear that this *limes* was soon abandoned; probably in or about 83, if not earlier; for Agricola was pushing on, and of the forts which he built while actually conquering the country he seems to have kept only a select few permanently garrisoned. In this case, Camelon appears to have been chosen for this purpose,⁴ but the *limes* as such was demolished.

¹ Tacitus, *Ann.* xii, 31: *cunctaque cis Trisantonam et Sabrinam fluvios cohibere parat* (accepting Bradley's emendation for *castris antonam*, and assuming Trisantonam = Trent). This interpretation of the Fosse was advanced by the writer in the *Journal of Roman Studies*, xiv (1924), where the whole question is discussed.

² *Limes, limitis*: from *linus* = *transversus* (cf. *limen* threshold: so Festus) and the root—*it* 'going.' Cf. Fabricius, art. 'Limes' in Pauly-Wissowa's *Realencyclopädie*.

³ Haverfield, *Agricola and the Antonine Wall*, *Proc. Soc. Ant. Scot.*, 1917-18, 174-81. Macdonald, *Roman Wall in Scotland*, 382-8.

⁴ Macdonald, *op. cit.*, 385-6.

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It is curious that on his recall Agricola seems neither to have established a new frontier nor to have re-established this old one. He had by now penetrated into Strathmore, and established himself at least as far north as Inchtuthill, at the confluence of the Tay and the Isla¹. On his recall, he had not reached any point at which a new frontier could have been drawn. His left flank was menaced by the Perthshire mountains, and no *limes* could be satisfactorily drawn either parallel to the hills or at right angles to them. Curiously enough, his recall was practically coincident in time with Domitian's organization of the frontier in Germany; but though frontier-organization was in the air, it seems that no steps were taken to construct a frontier in Britain. It used to be thought that Agricola's conquests in the north were abandoned on his recall. Even were that view correct, we should still be unable to say where the evacuation ended, or to point out any *limes* for the period between Agricola and Hadrian. But it is now fairly clear that the assumption of an immediate withdrawal is baseless. At Inchtuthill, at Ardoch, at Camelon, a close criticism of the results reached by excavators some time ago, proves that the Flavian occupation lasted long enough to fall into several distinct periods, each marked by a good deal of rebuilding. At these three sites—and one ought perhaps to add a fourth, Newstead—the evidence for a prolonged occupation after Agricola's recall is definite in character and respectable in bulk.² But there is as yet no evidence that any definite frontier was constructed for the next forty years. So far as we know at present, the north of England and the south of Scotland were held during this period by a certain number of forts placed at strategic points—how many, we cannot pretend to guess—and “petering out,” rather than brought to a definite edge, in the neighbourhood of Perth.

This implies an unsatisfactory military situation. In Scotland, the Romans held a mere strip, long and narrow, roughly defined by the sinuous line Melrose–Edinburgh–Falkirk–Stirling–Perth. East of this line, everything was perhaps in their hands, but west of it lay the

¹ Excavations: *Proc. Soc. Ant. Scot.* 1901-2, 182-242, and *Jour. Rom. Stud.* ix. 113-122.

² Macdonald, *The Agricolan Occupation of North Britain*, *J.R.S.*, xix, 111-138. Home, *Roman York*, 36-37, seems to express dissent, but makes no attempt to re-interpret the facts in any other way, and bases his case on false assumptions as to the implications of Macdonald's theory. For Newstead, see Richmond in *Proc. Soc. Ant. Scot.* 1923-4, 309-321. While this was in the press I heard of a further and apparently conclusive confirmation in the excavations going on at Mumrills.

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wild and almost untouched country of the central and western Lowlands and the southern Highlands, a constant menace to so long and so thin a line. Wales and northern England were completely conquered, but not so completely pacified as to permit a safe removal of all troops ; so that the army of Britain was spread out over a strip of country 350 miles long, whose northernmost point was 200 miles away from the nearest legionary fortress, by a line of communications half of which was dangerously exposed on the flank. It was unsound strategy, and defensible only on the plea that, to Agricola, it represented a temporary phase in the conquest of Scotland ; his unceasing offensive gave the enemy no time to hit back. But when the offensive stopped, the weakness of the situation must have appeared at once. And the rebuildings traced by Sir George Macdonald at the Scottish forts suggest that these were more than once, during this period, successfully assaulted and destroyed. This does not imply the annihilation of their garrisons, which according to Roman practice joined hands every summer with the legions from the three great fortresses—York, Chester, Caerleon—and formed one or more field armies ; during distant operations, a local rising might easily overpower the small body left in charge of the fort and destroy its buildings. Yet the possibility of such risings proves the general insecurity of the position.

For many years, however, the Romans clung tenaciously to what they had gained. There is no conclusive evidence at present for the exact length of this period. It is probable that a good deal of reorganization took place about the turn of the century, and the northernmost Scottish forts may have been abandoned then ; but this is wholly uncertain. What is certain is that one whole legion disappears from the Army List between 107 and 122. The Ninth " Spanish " Legion lay at York, and we have an inscription recording its presence there in the twelfth *tribunicia potestas* of Trajan, A.D. 107.¹ On the other hand, the exceedingly numerous inscriptions connected with the building of Hadrian's Wall do not mention this legion, and we know that about 122 the Sixth " Victorious " legion came over from Germany to take charge of the York fortress.² This implies that the Ninth had disappeared by that time. We also know that at the beginning of Hadrian's reign (in or about 117, that is) there was trouble in Britain amounting to a

¹ C.I.L., vii, 241, where the date is given as 108-9 ; but see Cagnat, *Cours d'Épigraphie latine*, p. 194.

² For the date see Ritterling in *Pauly-Wissowa*, xii, 1606.

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more or less successful revolt,¹ and that, at some time in the same reign, the Roman army in Britain suffered very heavy casualties.² Putting these facts together, we may date the annihilation of the Ninth Legion about the beginning of Hadrian's reign.³ Now it is easy to see how a whole legion might be destroyed when operating in Scotland ; it would merely be another *Variana clades* on a smaller scale. But our authorities do not suggest, neither is it reasonable to assume, that the legion was attacked and overwhelmed in its own stronghold. Hence the probability is that this disaster was directly due to the unsatisfactory strategical situation following Agricola's recall, and that it served to demonstrate unmistakably the need for a new military policy.

This new policy was expressed in Hadrian's Wall. But this great barrier did not issue fully-formed from any single brain. It was the result of numerous experiments and adaptations whose history is exceedingly intricate and is very far, as yet, from being completely known. In order to arrive at some idea of what really happened, it is necessary to review, however briefly, the general state of the frontiers in Hadrian's time and the policy which he was, during these years, pursuing.

It was the special task of Hadrian to re-emphasize the Augustan precept 'keep the Empire within its boundaries,' and to give it, for the first time, a solid basis by drawing boundaries within which the Empire could be kept. Elsewhere, as in Britain, he constructed frontier-works ; but when these are envisaged as a whole it is clear that their purpose was not so much the defence of the Empire against an aggressive barbarism as the clear and scientific delimitation of its extent, resulting on the one hand in the renunciation of further conquests and, on the other, in a cheaper and more secure defence where defence was needed. The point can hardly be put better than it was put by Pelham: "he abandoned a policy of conquest in the conviction that the empire had reached its natural limits, and required not expansion but consolidation. In this belief he set himself to give the Empire, what it had only imperfectly possessed before, definite and well-marked frontiers."⁴

¹ Spartian, *Hadr.* v, 2.

² Fronto, 218 N.

³ Ritterling, *op. cit.* 1669, argues that certain recorded careers (L. Aemilius Karus, L. Novius Saturninus) suggest a decidedly later date—after 120, and preferably after 125. I cannot think that this is consistent with the legion's absence from the British mural inscriptions.

⁴ Pelham, *Essays on Roman History*, 162.

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The idea of marking a frontier by means of a continuous ditch was far older than Hadrian ; it goes back to the ditch of Scipio in Africa ; but it seems to have been first revived and applied, with modifications, to the needs of the Empire by Hadrian. Spartian tells us that about 120-122 Hadrian erected massive palisades to separate the barbarians (from the Empire, that is). Of these we have abundant traces on the upper German and Rhaetian frontier. Here, before Hadrian's time, the frontier had been the mere fore-edge of a network of forts, built up by degrees during the Flavian-Trajanic period. But what, exactly, was the significance or purpose of the new palisade ? It is quite certainly not a continuous fortification. Mommsen's observations are conclusive.¹ "Neither the one nor the other [neither the Pfahlgraben nor the Teufelsmauer, which superseded Hadrian's palisade] was constructed for the defence, as a whole, of the frontier. Not merely was the hindrance. . . . to an assailant slight in itself, but along the line we meet everywhere with commanding positions, morasses, lying in the rear, a want of outlook towards the country in front, and similar clear indications of the fact that in the tracing of it warlike purposes generally were not contemplated." What Mommsen here says of the later German works is *a fortiori* true of the earlier ; Hadrian's palisade, considered as a military obstacle, shows all the weaknesses enumerated by him and some others of its own. It can only have served two purposes : to mark unmistakably the point at which Roman territory ended, and to facilitate the patrolling of the line by making it difficult for casual bands of robbers to cross it. For such a palisade, though no obstacle to an army, was a real obstacle to petty thieves and cattle-lifters. You cannot lift cattle over a nine-foot fence. And if evidence is required that the Roman government took petty thieves seriously, it is to hand in the shape of inscriptions set up by Commodus announcing that he had fortified the Danube bank precisely in order to frustrate these persons.²

Elsewhere Hadrian's policy was similar. We may instance the Dobruja frontier, where a ditch was dug and an earthen rampart thrown up, probably, by Hadrian ; and the Numidian frontier, where similar works were constructed about the same time. In all these cases, and in others—there is no need to enumerate them exhaustively here³—

¹ Mommsen, *Provinces of the Roman Empire*, E.T. i, 157.

² C.I.L., iii, 3385 (= Dessau 395) *ripam omnem burgis a solo extructis item praesidis per loca opportuna ad clandestinos latrunculorum transitus oppositis munit* : *ibid.* 10312-3.

³ Fabricius, art. *Limes*, in *Pauly-Wissowa*, xiii.

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Hadrian's principle is clear. He first selected the best line for a frontier, and then marked it by means of a continuous work which in certain cases might serve as an obstacle to *latrunculi*, but was never intended as a military defensive work.

Now let us return to Britain. We do not know what exactly was the situation with which Hadrian had to deal; but it probably included a recent and far-reaching collapse of the unstable system left behind by Agricola, a collapse which, while not involving the loss of York, did involve the loss of the Ninth Legion. If, as Spartian suggests, this disaster took place about 117, some steps must have been taken to stem the tide of defeat before Hadrian's arrival in Britain in 122. And of these steps we have actual relics. There is a road, locally known as the Stanegate, which runs roughly parallel to Hadrian's Wall and a little way south of it. On this road are Roman forts of four different periods: (i) Agricolan, about A.D. 80; (ii) late Domitian or early Trajan, about 100¹; (iii) late Trajan, about 115; (iv) Hadrian, about 120. Period (iv) synchronizes with the building of the Wall; period (ii) is unmistakably earlier than the Wall, but very little earlier. The forts of this period² are only explicable as representing a concentration along the Stanegate line a few years before the building of Hadrian's Wall; and, proving as they do that the Stanegate became a *limes* about the beginning of Hadrian's reign, they strengthen the evidence for the view that this was the time at which the Ninth Legion was destroyed and the last remnants, if not the whole, of Agricola's northern conquests lost.

The theory of Hadrian's work which held the field till 1925 was as follows. A ditch, more or less of the ordinary Hadrianic type, was dug, and forts were built along it, on a line slightly advanced from the Stanegate. The forts stood on the far side, the enemy's side, of the ditch, doubtless to facilitate operations against the enemy, a fact eloquent of the non-military character of the ditch, the so-called Vallum. Each fort was connected with the Stanegate by a branch road. That was Hadrian's original frontier: whether planned by himself in 122 or by his legates a little earlier does not matter. At a later date, but very little later, the great stone wall was built, complete

¹ The *separate* existence of this period is not proved. Nether Denton was certainly occupied then, but we do not know that it was then first occupied. *Archaeologia*, lxiv, 303.

² Haltwhistle, Burn, and Throp, are the dated examples. For the establishment of their date, see *Cumb. and West. Trans.*, N.S., xiii, 379-381.

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with its mile-castles and turrets,¹ linking up the forts directly. The grounds for believing that the Wall was later than the forts and Vallum were various. For one thing, each fort seemed built as a self-contained work, and the Wall abuts against its curved angle as if it had been an afterthought; for another, the ditches of the forts seemed to run underneath the Wall, which had collapsed into them at various places; again, the course followed by the Wall seems here and there to have been determined by the presence of the Vallum as already in possession of the ground; and the road which follows the Wall has been conclusively proved by excavation to be later than the Vallum in date. It was therefore believed² that the Wall was an afterthought, due to the discovery that a frontier marked simply by the Vallum was too difficult to patrol efficiently and protect against bands of raiders.

But this is a highly simplified statement of a theory which, taken in its entirety, presented very serious complications. We knew that at one place there was a Wall too many—a turf wall, interposed between the stone wall and the Vallum; it had been suggested that this was Hadrian's Wall, and the stone one that of Severus—for ancient writers ascribe a Wall to each emperor—and the suggestion had been conclusively disproved. We also knew that certain of the forts had been enlarged or rather completely rebuilt on a larger scale, and this enlargement, which certainly took place at an early date, seemed later than the turf Wall and yet earlier than the stone Wall. When all these and other complications were stated, no one but a specialist could keep the theory in his head for five minutes together, and even the most sympathetic continental critics³ were moved to pronounce the thing *schlechterdings unverständlich* and to deplore the *Planlosigkeit* which it perforce attributed to the Romans.

It is proverbially darkest before the dawn; but some nights manage to get still darker when they have already reached what one might think to be the point of saturation. Since the above theory was formulated, new evidence has come to light which disproves at least

¹ For a general description of the works, see Collingwood, *Hadrian's Wall, a history of the problem*, J.R.S., xi, 37-66, or *Guide to the Roman Wall*, Reid, Newcastle, 6d.

² The whole view is set forth in detail in the article *Hadrian's Wall*, cit. in the preceding note.

³ I refer to Professor Fabricius, who took endless trouble to understand the English theories during the preparation of his invaluable *Limes* article for Pauly-Wissowa's *Realencyclopädie*.

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some part of it ; but, so far, the effect has not been simplification of the problem but a new complication.

This new evidence is the discovery, at one fort,¹ that the fort ditches, while underlying the stone Wall, do not underlie, but stop short of, the foundation of another Wall parallel and quite close to it. This other Wall has been razed to the ground when the stone wall was built, but its foundations were left : and these foundations closely resemble the ordinary stone foundation-course of an earth or turf wall. But they are too narrow to support an earth or turf wall of any considerable size, and they are not identical in plan with the foundations of the one piece of turf wall on the Hadrianic line with which we were already familiar : for that has no stone foundation whatever.

But it now turns out that we had often seen this foundation before. It is a good deal broader than the stone Wall, and it has often been noticed that the stone Wall stands on a foundation that is too broad for it. This broad foundation now turns out to be the foundation of the earlier Wall, which has been in some places demolished so as to build the stone Wall on the same foundation, and in other places allowed to stand until the stone Wall had been built parallel to it.²

How do these facts modify the theory ? It is too early to say : but some things can already be said. First, it is more certain than ever that the forts were built before the stone Wall ; but it now appears that they were not built—or at least, this one fort was not built³—before the earlier, broad-foundation Wall, but contemporaneously with it. The theory of originally isolated forts, in this case at least, falls to the ground. Secondly, if the forts were built simultaneously with the early Wall, then early Wall, forts, and Vallum seem to be all simultaneous, and we are once more face to face with the problem why two lines—Wall and Vallum—should have been constructed at one and the

¹ Hull, *The Excavations at Aesica*, 1925, in *Archaeologia Aeliana*, 1926, 197-202.

² The broad foundation may be admirably seen in e.g. *Cumb. & West. Trans. N.S.* xi, fig. 6 facing p. 404.

³ This fact is of importance. Great Chesters (Aesica) lies well away from the Vallum, which therefore it does not deflect. It is therefore open to anyone to hold that this fort, and conceivably one or two others, were built not simultaneously with the Vallum but at a later stage in the development of the frontier, when the broad-foundation Wall was added. In this case, the theory above described as holding the field to 1925 requires only two modifications : (a) the addition of the early broad-foundation Wall before the stone Wall ; (b) the hypothesis that certain forts were added at this stage. Personally, I regard this as the only working hypothesis likely to commend itself to those in possession of the facts as now known.

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same time. The theory that one was a military barrier and the other a civil or legal line of demarcation, is hardly plausible, for (i) the early wall, regarded as a military barrier, must have been futile; (ii) why should not the same work serve both purposes? Mommsen suggested that the Wall and the Vallum were the northern and southern edge of a strip of ground which was the *limes* proper; but that is surely a counsel of despair. Had so extraordinary an arrangement been necessary, we should expect to find traces of it on other frontiers. Thirdly, we are now more than ever faced with the problem of dating the stone Wall. If the broad-foundation Wall is Hadrian's, when was it replaced by the stone Wall? For this we seem entirely without direct evidence.¹ The milecastles and turrets are certainly Hadrianic; their pottery, their coins, their inscriptions, all prove that beyond a doubt. But do they belong to the broad-foundation Wall or the stone Wall? I cannot discover that any evidence hitherto recorded settles that point. That they do not belong to the previously-known turf Wall is certain; but that is not necessarily identical with the broad-foundation Wall. Yet the stone Wall where it runs parallel to that piece of turf Wall is not built on a broad foundation.

These questions are certainly answerable; but they are answerable only by further and very highly skilled digging. And for my own part I have little doubt that part of the difficulty lies in the fact that different working parties constructed different parts of the line and were allowed a very considerable latitude in methods. To take one example

¹ I should like to discuss a piece of circumstantial evidence on this head; though to avoid breaking the thread I relegate it to a footnote. The 'centurial stones' which marked the beginning and end of each section of the Wall built by a century acting as an independent working-party certainly belong to the stone Wall, not to that of the broad foundation. I say this because in character and style they resemble the materials of the stone Wall. Now in Wales, centurial stones are quite common; they seem to belong to a period going down to, perhaps, about the end of Trajan's reign, when forts were being built in stone. The fashion of dividing up a fort-rampart into lengths and assigning each length to a century may thus be called a Trajanic fashion; and the Hadrianic forts of the Wall, which belong to a type evolved in Trajan's reign, are thus not the only Trajanic feature on the Wall—the centurial stones constitute another. Now the Antonine Wall was, as I point out below, divided not into centurial lengths but into much longer sections, plainly more economical to build. I understand the transference of a centurial division of labour from Trajanic fort-walls to a great stone wall under Hadrian, and I understand how, being there found cumbersome, it should be replaced by a better division of labour under Pius; but I cannot believe that, after the Antonine Wall, anyone would exhume a Trajanic method of building forts and apply it in sheer wantonness and perversity to the stone Wall. I infer that the stone Wall is Hadrianic.

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only : in general, the Wall is built of small hammer-dressed stones with very little visible tooling, each stone being of a size to be carried by one man. But at Rudchester Mr Brewis lately found, at the north side of the Wall, a handsome moulded plinth,¹ and in the length of Wall lately destroyed in rebuilding the road at Heddon-on-the-Wall the stones of the lowest course are enormous blocks two or three feet long.

If Hadrian's policy was to construct frontier-works intended rather as lines of demarcation than as military obstacles, it may be thought that the stone Wall must belong to a much later period—say, to the age of Severus.² But there are strong reasons against this, quite independent of the question (raised above) whether the milecastles and turrets belong to the broad foundation or the stone Wall. And, paradoxical as it may seem, the stone Wall is very far from being a satisfactory military obstacle. It must have been quite 15 feet high to the parapet-walk, and that walk, while broad enough to let sentries pass, cannot have been nearly broad enough to allow troops to march, even in single file, behind men actually engaged in fighting. The parapet-walk was only accessible at the turrets, 500 yards apart : unlike the stone wall of a fort, it was not backed by an earthen bank giving access at every point of its length. Even had the garrison been armed with bows and arrows, which they were not, they could not have defended so narrow and inaccessible a line against determined escalade ; and anyone who thinks of the actual armament of Roman auxiliaries will see that they would have been helpless, when perched fifteen feet above ground, against an enemy capable of using archery-fire against them. Perhaps I may here repeat what I have said elsewhere.³ " The rampart-walk cannot have been more than three or four feet broad, and that is a very narrow fighting-front. There would be barely room for a man to pass behind the actual firing line. . . . It would be practically impossible to reinforce a threatened point, even in the most favourable conditions ; wholly impossible to move wounded men. And a few corpses, or a couple of Caledonians who had effected an escalade, would block the walk entirely. . . . Let anyone try to imagine a front-line trench during an attack, with the conditions that the ' trench ' is a wall-top

¹ *Archaeologia Aeliana*, 1925, p. 103 and plate xiv.

² My paper on *The British Frontier in the Age of Severus* (*J.R.S.*, xiii), was written before the new evidence at Aesica came to light. But I do not see need to withdraw its conclusions in consequence of the new discoveries.

³ *The Purpose of the Roman Wall*, in the *Vasculum*, Oct. 1921.

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fifteen feet from the ground, and that access can only be had at points 500 yards apart, the turrets taking the place of communication trenches: and he will recognize the impossibility of fighting on the Wall."

The function of the Wall, then, was to serve as an elevated sentry-walk and an obstacle to raiders—to those *latrunculi* on whose account, as we have seen, Commodus fortified the banks of the Danube. If Commodus thought them worth a chain of forts, why should not Hadrian, if Hadrian it was, think them worth a wall?

Why Hadrian's line was deserted in favour of the old Agricola Clyde-Forth *limes*, we do not know. The forward move made by Lollius Urbicus in the reign of Pius, about twenty years after the establishment of Hadrian's line, is something of a puzzle. It was once believed that the intention was to form a double frontier, so as to make a defence in depth. Two cases of this, beside the British example, have been quoted, one in Germany and one in Dacia; but in all three cases the theory is erroneous, for the lines in question were rather successive than simultaneous frontiers. In Britain, there is no doubt at all that garrisons were moved up from the Tyne-Solway line to the Antonine Wall and that the older line was left to a great extent, if not altogether, undefended.

The new frontier was far more simply constructed than the old. Instead of a complicated system of works created by a series of experiments, we find here a simple and economically-planned line, intended from the first to have all the features that it ever possessed, and therefore much better designed than Hadrian's Wall.¹ The Wall itself is of turf in its western portion, of earth and clay in its eastern; it is based throughout on a stone foundation, about 14 feet broad and well provided with culverts for drainage. It is supposed to have stood about 10 feet high and to have had a parapet-walk some 6 feet broad along the top; and from time to time it expands into a platform on which no doubt stood the signal-towers that were an essential part of every frontier-system. The mile-castles of Hadrian's Wall have here no counterpart; but the forts are much closer together and more regularly spaced; whereas Hadrian's average 5 miles apart and are sometimes separated by as much as 8 miles, those on the Antonine wall come at fairly regular intervals of about 2 miles. They are variously built;

¹ The chief work is Macdonald, *The Roman Wall in Scotland*, which summarizes all knowledge to 1911. Later additions by the same author are published in *Proc. Soc. Ant. Scot.* 1914-15 and 1924-5, and by Miller, *The Roman Fort at Balmuldy*, 1922.

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some have ramparts of stone, some of turf, some of earth ; whereas on Hadrian's line all the forts have stone or rather composite ramparts of stone with an earthen or clay bank behind. Another difference is that the barracks of the forts on Hadrian's Wall are of stone, those on the Antonine Wall of wood.

The most interesting feature of the Antonine Wall, however, consists of the so-called ' distance-slabs ' which mark the sections in which it was built.¹ There are seventeen of these ; they are good-sized slabs, each bearing a certain amount of decoration—the badges of legions, victories, and so forth—and an inscription recording the erection of a stated length of the Wall by such and such a unit in the reign of Antoninus Pius ; the name of the emperor being omitted from one slab only. The series includes pairs of duplicates, and these were placed one at each end of the length to which they refer ; also a set of four referring to a length somehow shared between two working-parties, each of which set up a slab for itself at each end of the length concerned. There were six working parties, two drawn from each of the three British legions ; an arrangement in striking contrast with that by which Hadrian's Wall (the stone Wall) was divided into minute fractions each built by a single century. The distance-slabs of the Antonine Wall, under Sir George Macdonald's patient analysis, have yielded a remarkably complete and convincing account of the methods by which the northern barrier was constructed.

Something of the history of Lollius' *limes* can be made out from the remains found by excavation in its forts. It was certainly constructed about 140–143, and as certainly abandoned about 181, as a result of the great rising of Caledonians and Maeatae mentioned in Dio (or rather, in Xiphiline's abridgment of Dio) as taking place in that year.² An attempt has lately been made, it is true, to argue that it was held much later. The evidence on which the main Roman occupation of Scotland was dated to c. 140–180 was in the first instance that of coins, as interpreted by Haverfield in 1899.³ At that time, accurate dating by the styles of pottery was in its infancy, and the evidence of coins was the only kind that was available for the purpose. Now it has been argued⁴ that coins, under the Roman empire, travelled slowly

¹ Macdonald, *The Building of the Antonine Wall*, in *J.R.S.* xi, 1–24.

² lxxii, 8.

³ *Antonine Wall Report* (Glasgow Archaeological Society).

⁴ Foord, *Last Age of Roman Britain*.

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from hand to hand, and took something like 30 years to reach so distant a region as Scotland. The cessation of coins at or about 180, therefore, would prove not that the Antonine Wall was given up then, but that it was held something like 30 years longer, that is, till Caracalla and Geta broke off operations in Caledonia on the death of Severus in 211.¹ This theory, however, is based on a mere guess. Its author adduces no single shred of evidence in its favour, except two points neither of which supports it: first, the view of Dr J. G. Milne that coins reached Egypt about five years after they were minted in Rome,² and secondly, Macaulay's³ anecdote of the Lancashire quaker, who in the seventeenth century brought undepreciated coins to London some thirty years after depreciation had set in. It is hardly necessary to point out how far these arguments are from proving a thesis which, if true, would be easily provable. In point of fact, it is easily and conclusively disprovable, not only directly by reference to well-known facts but indirectly, because if it were taken seriously it would soon contradict itself⁴.

It is certain, then, that the Antonine Wall was finally evacuated, as such, in or about 181. But before that date it is archaeologically certain that many of its forts had been destroyed and rebuilt. About 155, we know from coin evidence that war was going on in Britain, and with this may be connected various records of activity about 158 by the imperial governor Julius Verus, who restored at that time a number of forts presumably destroyed, to judge from their distribution, by a Brigantian rising.⁵ Pausanias, too, has a reference to a Brigantian war of Antoninus Pius, which may belong to this time.⁶ It seems very possible that this rising resulted in the visible damage to the Antonine Wall. Here and there a second period of destruction and rebuilding has been traced, and these would fall into line with the British war described by Capitolinus⁷ as having been conducted by Calpurnius Agricola. Inscriptions certainly prove that Calpurnius Agricola was active in Northumberland.

¹ Foord, *op. cit.* pp. 32, 50.

² *J.R.S.* x, 172.

³ *History of England*, ch. xxi.

⁴ See the reviews by Oman in *J.R.S.*, xvi, Macdonald in *History*, April 1926, and Collingwood in *Eng. Hist. Review*, April 1926.

⁵ Haverfield in *Proc. Soc. Ant. Scot.*, 1904, 454 seqq.

⁶ viii, 43, 4.

⁷ *Marcus Aurel.* 8, 7.

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The final evacuation was certainly due to a disaster. The Wall, says Dio,—he does not say which wall—was broken through, and a Roman general—the word seems to mean the governor himself—fell in battle. Archaeology shows that both Walls were in fact affected, and much else beside. Recent excavations actually suggest that the fortress of York fell;¹ and that is quite consistent with Dio's story, for York seems to have been the military centre of Britain and the natural residence for a governor when engaged in military work. Commodus, we are told, was panic-stricken, which again is consistent with the fall of York; and he sent one Ulpius Marcellus to retrieve the disaster. I have argued elsewhere that what Marcellus did was to restore Hadrian's Wall and such of the forts south of it as were necessary for its security.² Nearly a generation later, Severus came over to take the field in person against the Caledonians, and literary tradition ascribed to him the rebuilding or even the original construction of Hadrian's Wall. The evidence of inscriptions makes it wholly impossible to take this literally; but Severus did no doubt set the frontier-system on its legs again to some extent, though his actual operations suggest that he wished to imitate Agricola rather than Hadrian and to complete the conquest of Scotland.

After the campaigns of Severus, ending in his death at York in 211 and his sons' abandonment of the half-finished work, there was a long period of peace, for all we know to the contrary. The forces opposed to Rome were gradually shifting and forming themselves into new shapes, and these new shapes only began to manifest themselves towards the end of the third century. Not that the intervening period was wholly peaceful; it was not; but the centre of interest now begins to move. About the years 270–280 two new factors appear: the Scots of Ireland and the Franks and Saxons of the North Sea. About 270 the Irish, according to their own account, were planting colonies in Pembrokeshire, and there is a good deal of evidence for unrest on the west coast of England about this time. Simultaneously the Saxons began raiding down channel. The result was a gradual inversion of the position on the British frontier. Hitherto the south of Britain had been in constant and close touch with Gaul and, through Gaul, with Rome: her enemies had been on the north, away across the Wall.

¹ Or at any rate, that not long after 182 it was rebuilt. Miller, *Roman York*, *J.R.S.*

xv, 185.

² *The British Frontier in the Age of Severus*, *J.R.S.*, xiii.

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Henceforward the Wall was only one of her frontiers, and perhaps not the most important: her most active enemies were engaged in cutting her adrift from the continent, and she had now to defend herself on all sides.

This changed situation shows itself dramatically in the reign of Carausius, the naval commander who made himself emperor in Britain and, for the first time since A.D. 43, reminded the world that Britain was an island. He was forced into this position by the Saxon sea-power, and his severance of Britain from the empire is as it were the anticipation of its final severance, more than a century later. We do not know when the great forts of the Saxon shore, the forts that defended the southern or maritime frontier of Roman Britain, were built: they were probably not all built at once, and it is a reasonable guess that their systematic organization was due to Diocletian and his colleagues at the turn of the third and fourth centuries.

Thus, in the fourth century, we have the Wall to northward; the Yorkshire signal-stations to north-east¹; the Saxon Shore forts from the Wash to the Isle of Wight,² with outliers of the same type at Cardiff and probably at Holyhead;³ and in Wales a series of Romano-British fortified hill-towns, apparently co-operating with the Roman garrison proper against the Irish.⁴ Roman Britain was playing a losing game, into whose vicissitudes this is not the place to inquire. It must suffice to say that the game was played and lost. On any showing, the Wall was given up before the defences of the province finally fell; according to the present writer's view, the first took place about 383 and the second gradually after a severance of direct relations with the continent that occurred about 410; but the matter is much debated at present and the details are little to our present purpose.⁵ Our outline of the various phases of frontier-policy adopted by the Romans in Britain is complete, without any determination of the exact point at which the twilight of fifth century history passes into darkness.

¹ Haverfield, *Roman Coast Defences of Britain*, *J.R.S.*, ii. Collingwood, *The Roman Signal-station on Castle Hill, Scarborough* (pamphlet, 2d.)

² Mothersole, *The Saxon Shore: Haverfield, Litus Saxonicum* in Pauly-Wissowa.

³ Wheeler, *Segontium* (*Y Cymmrodor*, xxxiii, 97-101).

⁴ Wheeler, *Roman and Native in Wales* (*Trans. Cymmrodorion Soc.* 1920-1).

⁵ See e.g., Bury, *The Notitia Dignitatum*, *J.R.S.*, x.; Collingwood, *The Roman Evacuation of Britain*, *J.R.S.*, xii; Foord, *op. cit.* and reviews by Macdonald (*History* Jan. 1926), Oman (*J.R.S.* xiv), and Collingwood (*Eng. Hist. Rev.* Jan. 1926).

Orientation

by VICE-ADMIRAL BOYLE SOMERVILLE, C.M.G., F.S.A.

THE term "Orientation," as applied to a structure of any kind, means the direction in which its principal line is laid out on the ground. Originally, as the word implies, orientation signified "eastwardness," only, and had special reference to churches, because (in western Europe) practically all churches were built with the longer side laid out in an east-and-west direction. In some, the line is to True East, exactly; in others the axis lies at an angle of some degrees either to the northward or to the southward of True East. This divergence in either direction from the Orient is called "the angle of orientation." Nowadays, the term "Orientation" has lost its original "Eastward" distinctiveness, and has become a general expression merely indicating "direction," and may imply any point of the horizon, and not necessarily the eastward.

Originally the angle of orientation was measured from True East as a zero, but now it is reckoned from the Meridian, or North (true).¹

During many centuries maps and charts have been drawn with the North end uppermost, and with "East" relegated to a side position. Consequently we find it a little difficult to realise that, anciently, East was the principal direction. We may surmise that the change

¹ Technically speaking, an angle reckoned from the Meridian is named an AZIMUTH, and is stated in degrees, minutes, and seconds of arc from 0° to 360° round the circle in the direction taken by the hands of a clock. This, the modern method of reckoning, is considerably the clearer and simpler.

An angular measurement reckoned from True East, or West is named an AMPLITUDE, and is stated in degrees up to 90° to the northward or up to 90° to the southward of East or West. Thus, it requires to be set down as "E—N" or "E—S", as the case may be (and from West in like manner).

The term BEARING is often seen used in reference to a direction, but, strictly speaking, this is a nautical term, and refers properly to the Mariner's (magnetic) Compass. It is the angle from Magnetic North, or Magnetic South for 90° each way towards East or West (magnetic), and requires to be stated as "N—E," "N—W," "S—E," or "S—W" as the case may be. It should never be used in describing orientations, which infer a True, and not a Magnetic direction.

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came about gradually, perhaps partly for the sake of the navigator, when the use of the magnetic compass was discovered, whose needle made a principal point of "North," and partly the change may have seemed to be rational, when the fact of the rotation of the Earth on a North and South axis was established. But in early days, the point of reference seems to have been East, namely that important part of the horizon at which sunrise took place.

When we go back into human history, we may find a practical reason for the importance of sunrises, and a special regard for the East, or Orientation.

In neolithic times, mankind was gradually giving up his "Ancient Hunter" form of nomadic existence, and was beginning to look to agriculture to provide him with some food.

"Farming," if we may so term these beginnings, necessitated the living, year in, year out, on the same spot, if only in order that the sower might be also the reaper. When thus established, the obvious inter-connexion of the annual movements of the Sun with the times of seed-time and harvest must soon have been remarked. Owing to this observation, the desire must next have arisen to establish a Calendar which should indicate what the connexion was between the Sun and Agriculture. Under primitive conditions this could be effected only by noting the daily change or movement of the point of sunrise along the eastern horizon together with the corresponding annual progress of the crops. (The observation could, of course, have been made as easily by noting the movement of sunsets, in the West; but it is more likely that the daily *return* of the Sun, and not its daily departure, is what would appeal to primitive people).

We may now consider the manner in which this first "Orientation Calendar" may have been made. To do so, let us imagine ourselves as seeing things with the eyes of these first "astronomers." Let us suppose that we are placed in the midst of some great fertile plain, such as that of Mesopotamia, with an eastern horizon line of distant mountains, whose peaks are silhouetted against the morning sky, and that from some fixed point within this plain, we are regarding, morning by morning, the sunrise. On the first morning the Sun is seen to rise (let us say) immediately behind peak A of the horizon line. A few mornings later, it rises behind peak B, a little to the left, as we regard it, of peak A. A few days later still, it is seen to rise still more to the left, behind peak C, and so on, until, after many days, a peak on the horizon is reached, farthest to the left, where, for a few days, the sunrise peak

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is the same (or nearly) on each successive sunrise—it is the time of the Midsummer Solstice, of great heat, and of long days of sunshine. Then would be seen to begin a retrograde movement of the position of sunrise, namely to the right day by day, past peaks C, B, and A, in that order, and further on still to the right, until at the end of what we term “six months,” a sunrise point furthest to the right is reached, where again there is for a few days little or no change in direction of rising—it is the Winter Solstice, the time of coldness, and of short days. And so on, with regularity, a constant daily movement of sunrise point in both directions, with a slight pause at the end of each travel.

We may presume that the next step in “astronomy” would be to count the number of sunrises between the two ends of the sun’s path along the eastern horizon. Then, dividing that number by two, the sunrise peak of the middle day would be noted; the time when days and nights were of an equal length—the Equinoxes of Spring and Autumn, denoting (in some latitudes) the times for sowing and for reaping, respectively. Then, as agriculture became less simple, or because, with the spread of knowledge into other latitudes the operations of sowing and reaping required different, or additional dates in the growing Calendar, the halving of the numbers of sunrises on each side of the Equinoctial peak on the horizon would provide two more calendar dates for agricultural operations; one to the left, midway between Midsummer Solstice and Equinox, and one to the right, midway between Midwinter Solstice and Equinox. When this was effected, there would be a division of the whole year into eight sections of 45 or 46 days each, terminating in dates that we still recognize and name as the four “quarter days” and four “half-quarter days.” So far as the present discussion is concerned, the point about them is that they originated, in all probability, through observation of sunrise points along the eastern horizon, and were the original points of Orientation.

So much for the primitive calendar of the Sun. The Moon, in ancient times (at all events in the countries between the eastern Mediterranean and the Persian gulf) was certainly employed as a time-measurer, a fact perpetuated in England by our word “month.” The necessary observations of the Moon for this purpose could not have been by its risings (or settings) because, except on the day of full moon either the rising of the Moon, or its setting, or both, take place during daylight, and so are not visible. Orientation, consequently,

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cannot probably be connected with moonrises, except, perhaps, on certain full moon days.

When we consider the Stars, however, their connexion with Orientation, and with sunrises, is fairly clear. Stars rise at (practically) the same azimuth at each revolution of the Earth on its axis. (There is a slow change in azimuth, due to Precession ; but except to an observer provided with an instrument of precision, it would not be noticeable). For this reason, the rising point of any particular star would fix a point on the horizon for the primitive observer as definitely as the " mountain peak " that we have imagined. Thus the position of sunrise (or of sunset) on any date may be referred to the particular star that rises (or sets) at the same point as the Sun on that date. In this fact lies the origin of the Zodiac, which is the belt of stars within whose limits the Sun apparently rises and sets throughout a year. Stars rise about 4 minutes earlier at each revolution of the Earth, so that in one year the point of sunrise (or of sunset) passes through the whole 360° of the Zodiac. There is too much light on the horizon at the time of sunrise (or sunset) actually to see at that moment any particular star rising or setting, but the group of stars, or " constellation " which is seen immediately before dawn (or immediately after sunset) directly behind the Sun at its rising or setting is the " Sign of the Zodiac " of that time of year. Sunrise or sunset of any date may thus be referred to the rising or setting of one of the Zodiacal constellations, and, in particular, to any specially bright star within it (many of which have special names, anciently bestowed), as these would be the last stars visible in the sky before the sun rose, and the first to be visible in the evening twilight after it had set. In early astronomy, such stars were said to be rising or setting " heliacally." For these reasons, Orientation can be referred to a star-rise as much as to a sunrise.¹

By the time of the classical authors B.C., the agricultural divisions of the year were, in certain regions, well established (*e.g.* the connexion of the heliacal rising of the Pleiades with the date of the Spring sowing in northern Italy). As to the beginnings of this knowledge, we are not able to date, even approximately, when sunrise and star-rise observations began to be made ; but from reasoning connected with

¹ It may be remarked that there are, besides the Zodiacal stars, certain well-known bright stars that rise and set further north, along the horizon, than the Sun at the Summer Solstice, or that rise and set further south than the Sun at the Winter Solstice. These stars may possibly be connected with Orientation ; but there is as yet insufficient evidence of its occurrence.

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precession the Zodiac (the very nature of which implies the long-previous existence of such observations) must have been known in Mesopotamia as early as 5000 B.C. In western Europe man was then in the earliest stages of culture, and remained so until about 2000 B.C., but it is conceivable, and even probable, that during those millennia some knowledge of eastern agriculture slowly filtered westward into the savage world of Europe, and with it the knowledge of marking the seasons by sun and star-rises. We ought not therefore to feel surprise at finding traces of that knowledge in prehistoric remains in these Islands. This excursion into ancient astronomy has been necessary not only to realize the origins of Orientation, but also to point out the principal dates of the primitive calendar,—the “quarter-days” and “half-quarter days.” We have now to apply this knowledge to prehistoric archæology.

During recent years the writer has made surveys of a considerable number of megalithic structures in these Islands, and of a few in France. The plans of many (but not of all) of these ruins, when plotted on paper, show undoubted indications of “precise” orientation. By the term “precise” is meant that these structures are laid out not only in general fashion to the Eastward or Westward arcs of the horizon, but that either,

- (1) Their axial lines are precisely directed to sunrises (or sunsets) of the quarter days, or half-quarter days of the Calendar, or,
- (2) From some well-defined position within the structure, or, in the case of a Barrow, from some spot upon it, a line of direction is made observable, by some means, to a distant object, natural or otherwise, which line is also precisely that of sunrise or sunset of a “Calendar” day.

Many observers have noted this fact of orientation in the monuments of antiquity ; it is no new discovery ; but as its existence is still largely doubted, every new detail respecting it is of value. Most, if not all, of the existing megalithic monuments are graves, or monuments of the dead. The only ones whose funerary character is doubtful are single Standing Stones, Stone Rows of 2, 3, 5, 7, etc., standing stones, and perhaps, some Stone Circles.

For what reason any of these structures should have been given “precise” orientation we do not know. Such, however, is the case.

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That there is an ancient connexion between Death and Orientation is certain, for the custom still exists in the Christian world—a custom without any definite explanation—of laying the dead in the ground with their feet “towards the East”; they are, in fact, “orientated.” The church around which the dead are buried is usually orientated also; but this is because churches (in western Europe, at least) have their origin, as a structure, in tombs. The first Christian missionaries in Rome were men of Jewish origin, and, instead of following the surrounding (heathen) custom of cremation of the dead, they buried, or rather, entombed the bodies of the first martyrs of the New Faith. This may partly have been in accordance with their own native custom of disposing of the dead, but no doubt had also in view the preservation of the body for Resurrection Day, then believed to be imminent. The tombs of these first martyrs were placed in the Catacombs, and there became the first altars of Christianity. A recollection of this is still maintained, for, even in the present day (in the Roman church), the relic of some dead saint is deposited in every consecrated altar-stone; so that, to that extent, a church may still be regarded as a “tomb.” Whether in the Catacombs the altar-tombs were placed in any “eastward” position or no, the fact is that when upper-air churches came to be built the custom arose and spread of placing the altar at the East end. The Christian faith does not, of itself, demand that the worshipper should face himself in any particular direction, and, in establishing such a custom, we may probably see a picturesque symbol of the resurrection of the body as represented in the daily resurrection of the Sun out of the nether darkness; in the direction of which spectacle the devout should be turned. Among Eastern peoples the belief in Resurrection is far older than the beginnings of Christianity (*e.g.* Ancient Egypt), and we may probably see in Christian orientation, as established by these Jewish missionaries, the revival, or the adaptation to the new religion, of some ancient Palestinian belief and custom.

To return now to megalithic monuments. It was stated above that while some certainly have “precise” orientation, others have not. Of these latter, it should be said that there are two other means besides the “precise” solar method by which orientation can be effected, neither of which has yet been fairly investigated.

- (1) By stellar orientation, with special reference to the stars outside Zodiacal limits, such as Capella, Arcturus, Sirius, etc.
- (2) By orientation in some non-astronomical direction.

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By method (2) is meant the laying out of the dead so as to face in some *terrestrial* direction, such as towards some sacred and adjoining site, or towards another country, such as, in the case of a warrior, that of his foes ; or, as in the case of an immigrant race, the land from which they had come,—the direction of the road home.

Instances exist of both of these "orientations"; and the latter is well known in the South Pacific Islands, where the dead are commonly taken to the westward parts of the island they inhabited, this being the direction from which the race originally reached it. All invasions of the British Islands were necessarily from some eastward direction ; and this may possibly account for the directions in which Long Barrows (to quote but one example of prehistoric grave) are laid out ; that is to say, nearly all of them directed to some easterly point, but some markedly northward of East or southward of East—and not on "precise" orientations.

Seeing that it still is customary to orientate the dead,—though no longer "precisely" followed,—there is nothing inherently improbable in the supposition that it was also customary with our ancestors of the Neolithic and Bronze ages.

Again, the fact that early man buried or entombed his dead, and in most cases supplied grave-furniture shows that there then existed belief in a life beyond the grave.

And if survival after death was believed in, the idea of resurrection almost logically follows. Orientation to a rising sun, or star, clearly typifies this idea ; while orientation to a setting body (which also occurs in prehistoric monuments) perhaps typifies the belief of some different, and gloomier-minded race, in a final descent to some under-world to the westward.

Here, then, is a field of investigation of which the results would provide at least one more contribution towards the unravelling of neolithic problems, and even, perhaps towards the allied problem of the early migrations of races. Even if the surveyor of a prehistoric structure should be of opinion that there is "nothing in" Orientation, still the direction in which the structure is laid out on the ground should be accurately reproduced in the resulting plan, if only in the interests of scientific completeness. Until this is done, the matter will never be settled as to whether, in fact, there is, or is not Orientation in these structures of antiquity ; and if there is, wherein it is expressed. It

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seems impossible that the instances of "precise" orientation already published should be the result of mere chance ; and, as hinted at above, if the fact of Orientation can be raised above all doubt, there is a great deal more in the subject than is contained in the mere discovery of it.

There is another problem latent in Orientation, namely the possibility, on astronomical grounds, of arriving at the date of erection of a monument. An article dealing with the subject, with special application to Stonehenge, appears in the present number of ANTIQUITY ("Stonehenge considered as an Astronomical Instrument," by A. P. Trotter). The writer of these notes finds himself in full agreement with the conclusions come to by Mr Trotter ; yet a few remarks on the subject, both on general lines, and particularly as regards Stonehenge, may be of interest.

Even if we accept (as many do not) that there is in any prehistoric structure an intentional orientation to a rising or setting body, it may confidently be said that it is not possible to ascertain the date of erection of any such monument through a *solar* orientation.

The chief general reason for this is that we do not know,—and probably never shall know—what *particular moment* of the phenomenon of sunrise was chosen by the builders for the laying out of the desired line on the ground that was to be the orientation of the building. Mr Trotter has referred to this in his paper. The importance of possessing this knowledge lies in the following facts:—Owing to a certain movement of the axis of the Earth, the effects of which are known as "Precession," the azimuth of sunrise is steadily and perpetually changing, and it is on the knowledge of the amount of this change that the theory of the dating of a monument is based. The change in azimuth is exceedingly small, and at the latitude of Stonehenge is rather less than half of one diameter of the sun, measured along the horizon, in 1,000 years.

Now, at the latitude of Stonehenge (for example) at the time of the Summer Solstice, between the moment when the "first flash" of the sun's upper rim is sighted, and the moment when the whole sun is seen standing (as it were) on the horizon, the sun changes its azimuth by about $1\frac{3}{4}$ diameters along the horizon. So that the date arrived at by accepting "first flash" as the proper moment for observation, differs by nearly 4000 years from that arrived at by considering "whole orb visible" as the moment. "First flash" is just as likely a moment as "whole orb." We do not *know* which to employ, and this it is which

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makes dating by azimuth of sunrise, whether at Stonehenge or anywhere else, impossible.

With regard to Stonehenge in particular, and the so-called "Axis" upon which the determination of date has been based, there are certain considerations that may be offered. The first of these is as follows:—The partial excavation made at the site during recent years has made it clear that there are at least three different structures included in "Stonehenge," built at widely differing dates. There is

- (a) The earth vallum and ditch, to the date of which possibly belong the un-trimmed sarsen blocks still remaining, namely the Heel Stone, the Slaughter Stone, and the two stones numbered 91 and 93, erected just inside the vallum, on opposite sides of its circumference.
- (b) The blue-stone Stone Circle and "Cove," when in their original positions, with the stones un-trimmed, as imported.
- (c) The blue-stone Stone Circle and "Cove," in their present position (partly trimmed). To this period possibly belongs the ring-fence of great sarsens that surrounds the blue-stone Stone Circle and Cove, and the trilithic sarsen Cove itself, trimmed, morticed, and tenoned.

The first named of these structures, the Earthwork ring, belongs, almost certainly, to a very early date in the neolithic period, while the great trimmed sarsens, with almost equal certainty, belong to quite a late date, possibly just before the opening of the Bronze Age. Two or three thousand years may separate these two parts of Stonehenge. To which of them does the date arrived at from the azimuth of the "Axis" belong?

Reference to the Stonehenge "Axis" brings us to another consideration with regard to the calculation of date. Axis is defined as the line which divides a regular figure symmetrically, and thus, in the case of a Circle, it must pass through the centre. If the plan of Stonehenge published by the Ordnance survey in 1867 be examined critically, and also the plan published in the *Antiquaries Journal* of January 1926, accompanying Col. Hawley's Report on Stonehenge, it will be seen that the position of the centre of the circle of the great trimmed sarsens differs from that of the centre of the blue-stone Stone Circle by about 2 ft.

The scale of either plan is too small to admit of any high degree of accuracy in stating the amount of the discrepancy; it is sufficient

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to show, however, that the "Axis" of the sarsen ring is not the same as the axis of the blue-stone ring, so that on this point also, the mathematical calculation of "dating" stands condemned.

The third observation to be offered is of an archæological nature. The writer has made, at different times, accurate large-scale plans of 27 Stone Circles in the British Isles. In not one case are the stones composing the ring placed in a true circle; that is to say, it is not possible to draw a line joining all the stones which is mathematically circular. The best that can be done is to draw two concentric circles, forming a band, wide or narrow, within which the stones forming the ring may fall. This is the case with the blue-stone ring at Stonehenge. The eight stones remaining *in situ* do not stand on the arc of a circle, but lie between the limits of two concentric circles, 4 ft. apart. It is the common centre of these circles that is referred to above. Strictly speaking, the figure formed by the stones has no single central point, and consequently, no "axis."

A further point is this. Of the 27 Stone Circles above mentioned, seven still retain the means by which Orientation was introduced into the structure. The remaining 20 are either too greatly ruined to exhibit their orientation, or else they never possessed this feature. In each of the seven cases the alignment for orientation is made definite by means of getting certain stones of the "circle" in a line. There is no imaginary *unmarked* line such as the "axis" postulated for Stonehenge. Always there is an actual, megalithic "fore-sight" and "back-sight," and sometimes a "middle-sight" as well. The method is as simple as it is obvious. The alignment is made across the middle of the ring of stones, from one side of it to the other, along what, if they truly were *circles*, would be called a "diameter," and the stones to be employed for the purpose of the alignment are indicated, usually, by being considerably larger than the other stones of the ring, and (in one case) the "fore-sight," or stone nearest the sun in taking the observation, was engraved all over with "cup-markings." In two cases, an additional standing stone was placed at a short distance outside the actual Stone Circle, to form a third stone on the alignment, so that there could be no doubt as to the intention of the orientation.

Why, then, at Stonehenge should we expect to find a sunrise alignment *not* marked out by actual sighting stones? It may be remarked that there is, indeed, a possibility that a summer solstitial alignment was actually marked out at Stonehenge. If the Slaughter

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Stone ever stood upright, the line it makes with the Heel Stone is that of solstitial sunrise ; and if this supposition as to the Slaughter Stone is correct, excavation should reveal a stone-hole in the chalk on the side of the vallum on the opposite side of its circumference in the vicinity of stone-hole " X 28 ", where an un-trimmed sarsen once stood that would complete the alignment, passing over the middle of the blue-stone Stone Circle.

But even so, if ever the excavation of the site is completed, and this stone-site recovered, it would still be impossible, for the reason connected with "first flash" and "whole orb" discussed at the beginning of these notes, to calculate from the azimuth of this line a date for the blue-stone Stone Circle, or for any part of Stonehenge. If a definitely certain *stellar* orientation could be found, a date might be calculated from it, with a margin of accuracy of, say, 50 to 100 years. But this opens up astronomical questions that cannot here be discussed.

Complete excavation would inform us also, as to whether Stonehenge is, as many have supposed it to be, the sepulchre of some important person, either as an original burial at the time of the making of the earth vallum, or a later "intrusive" burial when the imported blue-stone Circle was set up. If so, the undoubted aspect of the Cove to the summer solstitial sunrise would make one more connexion between Orientation and the Dead. The subsequent great edifice of trimmed sarsen surrounding the site would then become more understandable. In similar fashion, after a similar lapse of about 1500 years, arose majestic St. Peter's at Rome over the once humbly interred bodies of St. Peter and St. Paul.

Perhaps the prehistoric Sir Christopher Wren who designed and set up the huge pillars with their lintels himself, also, lies within, proclaiming—in the literal sense—to a wondering posterity, "Circumspice."

Stonehenge as an Astronomical Instrument

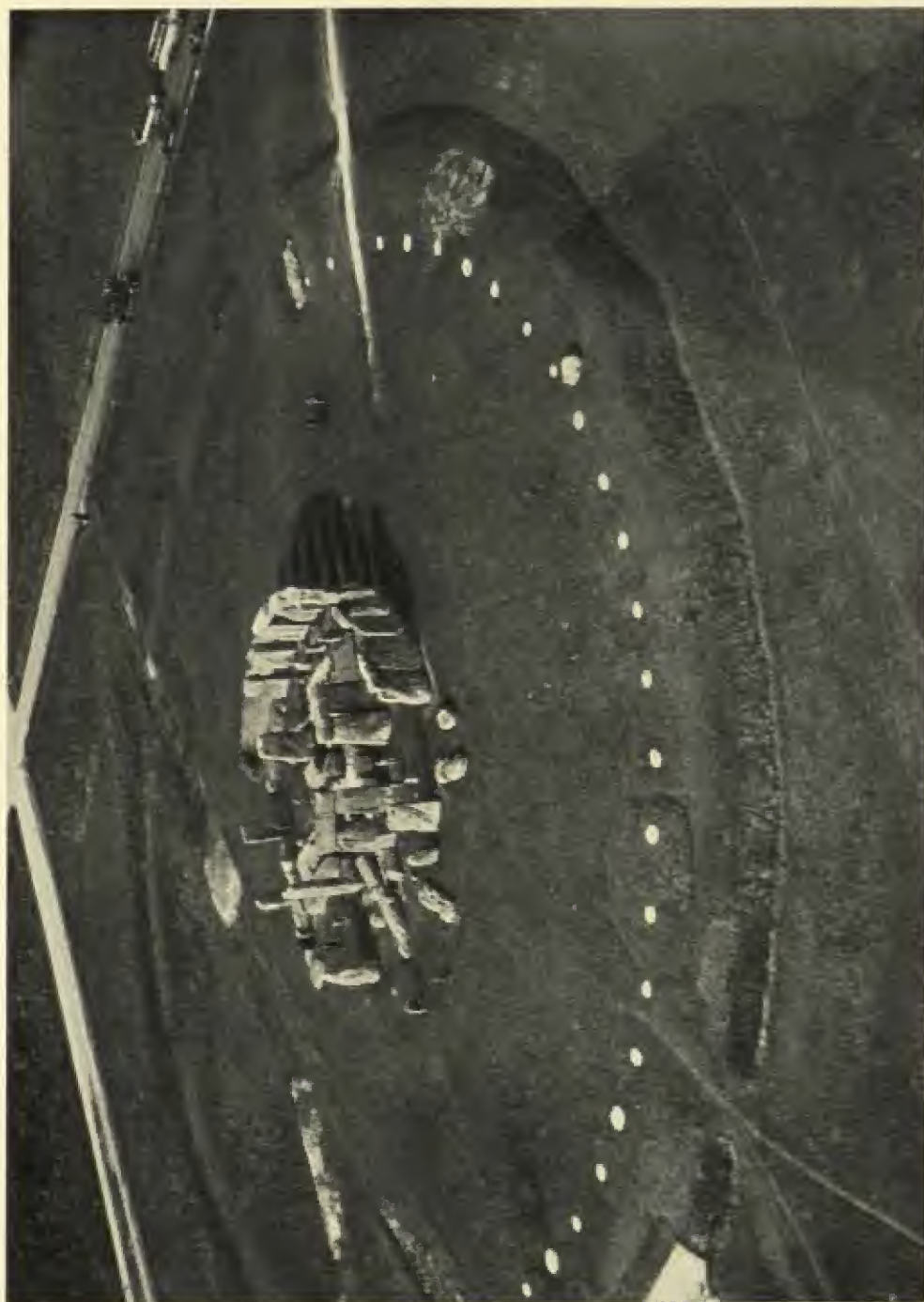
by A. P. TROTTER

THE astronomical controversy about Stonehenge may perhaps be approached from an impartial view of one who is neither an archæologist nor an astronomer, who offers no new or original observations, and proposes to examine facts rather than to discuss theories.

Sir Norman Lockyer was one of those who held that many Egyptian and Greek buildings were set so that they faced certain points on the horizon at which the sun or some bright star arose. But the buildings do not face these directions exactly, and the suggestion is that the discrepancies are due to a well recognized astronomical principle—that the points of rising and setting gradually move on the horizon ; and the rate of motion being known, the date of the building may be ascertained.

We are faced, at the outset, by two suggestions : that these structures were intentionally placed in these directions, and that they were built at these dates. The first is supported by the facts,—supported, not rigorously proved,—and the second is open to verification where historical data are forthcoming.

As when an archæologist beginning to excavate a site, digs through stones, mud, rubbish, and perhaps rock, and throws on one side all that contains nothing of worth to him, so he has to work through vague guesses, conjectures, old wives' tales, and even profound theories, and accept or reject them in his search for pertinent facts. One man's rubbish may be another man's treasure. Old wives' tales and traditions accurately compared and intelligently related may form a contribution to folk-lore, to the history of mankind, and to anthropological and ethnological science. On one solitary fact a wonderful edifice of speculation may be raised ; on the other hand, a patient accumulator of facts may labour for years, and have no more capacity for making any advancement in knowledge than if he had collected postage stamps.



STONEHENGE: OBLIQUE VIEW FROM AN AEROPLANE, TAKEN 23 SEPTEMBER 1926, BY 422 FLIGHT, R.A.F. BASE, GOSPORT
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STONEHENGE AS AN ASTRONOMICAL INSTRUMENT

The arrangement of the stones, the causeway of approach, and the so-called avenue of Stonehenge face towards the north-east, and more particularly towards the most northerly point on the horizon at which the sun rises at midsummer. On this general fact has been based the theory that Stonehenge was a temple for sun worship. Neither in Lockyer's *Stonehenge and other British Stone Monuments*, though it contains chapters on "Where did the British worship originate," and on "A short History of Sun-Temples," nor in any other writings that I have seen, can I find evidence of any institutional sun-worship in Britain, or sufficient proof that Stonehenge or any other stone circle was used as a place for public worship. There seems to be nothing but vague conjecture about the religion of the inhabitants of Britain until the time of the Druids, and the interval between the building of Stonehenge and our earliest account of the Druids is perhaps some 2,000 years. It may be that "going to church" did not play an important part in the religion of those days.

The popular tradition is, that on the longest day of the year the sun, as seen from the interior of Stonehenge, rises exactly over the Heel stone; and "therefore" Stonehenge was a temple for sun-worship. In the spring, the sunrise is in the east, and as summer comes on, its place on the horizon moves, at first quickly, and then more slowly towards the north, and it creeps up to the northernmost point which is reached on about 21 June, and after that it returns southwards. What is exactly meant by its "place of rising" will be discussed later. The tradition cannot be traced back for more than about 150 years, and it is certain that the sun never did rise over the Heel stone when observed at midsummer from the direction chosen by Lockyer, and will not do so until about 500 years hence. (By a slip of the pen, Mr E. H. Stone puts this at 1,000 years).¹ On that sunrise morning, may Stonehenge be there as it is to-day, and may all the deserted buildings and rusty derelict sheds in its neighbourhood have utterly disappeared!

As an astronomical instrument, Stonehenge consists of a pair of "sights" like those of a rifle. The fore-sight is the pair of stones (nos. 30 and 1) forming the entrance. The back-sight *was* the pair of stones forming the largest trilithon (that is a set of two upright stones and a lintel or cross stone resting on them), but of these only one, the tallest of all the stones (no. 56) is standing. For many years it was leaning, and was set upright in 1901. Its companion (no. 55) fell before

¹ E. H. Stone, *The Stones of Stonehenge*, (1924), p. 130.

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Stonehenge attracted the notice of antiquaries in the seventeenth century. There was another pair of stones, forming part of the outer circle, but only one of this pair (no. 16) remains, and it was not so important a back-sight as the great trilithon. (Fig. 1).

When Lockyer made his investigations in 1901, the great stone (no. 56) was still leaning, and it is possible that he considered that on this account it was of no great value for his purpose, although it was leaning in the direction of the entrance or the pair of stones which may be called the fore-sight. The Heel stone, about 205 feet from the entrance, was obviously no use as a fore-sight, it is too much to the right. In order to see it set midway in the entrance, you must stand with your back to the great stone, and at about six inches from its right hand (south-east) side.

Lockyer disregarded the stones altogether, and chose to adopt as his line of sight or axis the alignment of part of the indistinct earthwork called the avenue. This irregular earth-work, unnoticed by visitors whose attention has not been called to it, can be traced for a considerable distance, and photographs taken from the air show it curving to the right and ending at the river Avon. Mr Stone has examined it for 1,290 ft., and has made measurements over 750 ft. of its length, and considers that the true centre line cannot be determined with certainty until further excavations are made. It should be observed, however, that the direction, and not the centre line, is what Lockyer wanted. He seemed satisfied with it, and placed two pegs 140 ft. apart near the beginning, and four others averaging 100 ft. apart towards the north-east. The discrepancy between the two directions only amounted to one in 620, or, as he states it, 5 minutes 40 seconds of angle. He took the mean of the two directions as his line of sight.

I shall refer to this again later, but I prefer to deal with Stonehenge itself for the following reason given by Mr Stone in his book :—"The Axis of the main structure of Stonehenge as erected by the builders is a line passing midway between the stones nos. 56 and 55 of the central trilithon, and midway between the stones 30 and 1 of the outer circle." "It is obvious" writes Mr Stone, and there I agree with him, "that the term 'Axis of Stonehenge' would be meaningless as applied to any other line."¹

The difficulty at once arises that stone no. 55 has fallen, and though the great stone no. 56 is probably within an inch or two of its original

¹ *Op. cit.* p. 131.

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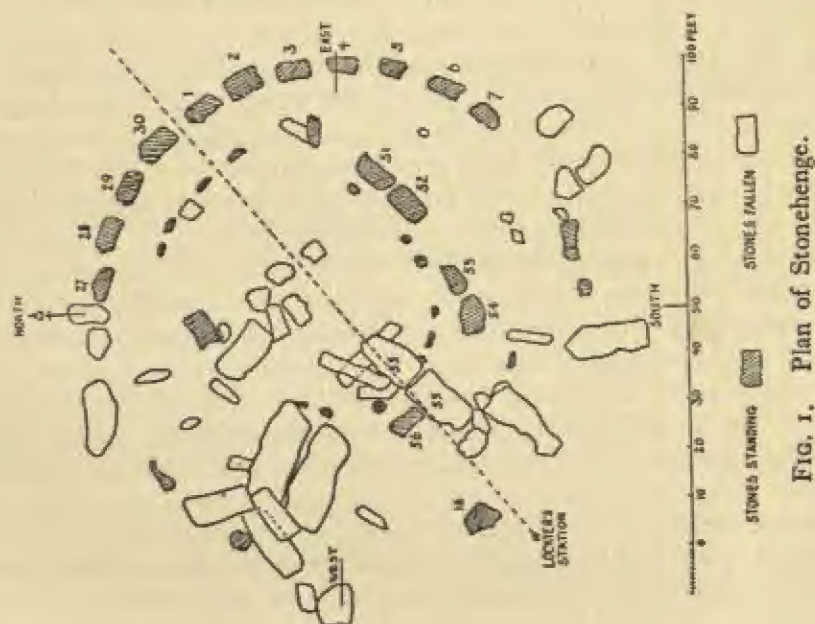


FIG. 1. Plan of Stonehenge.

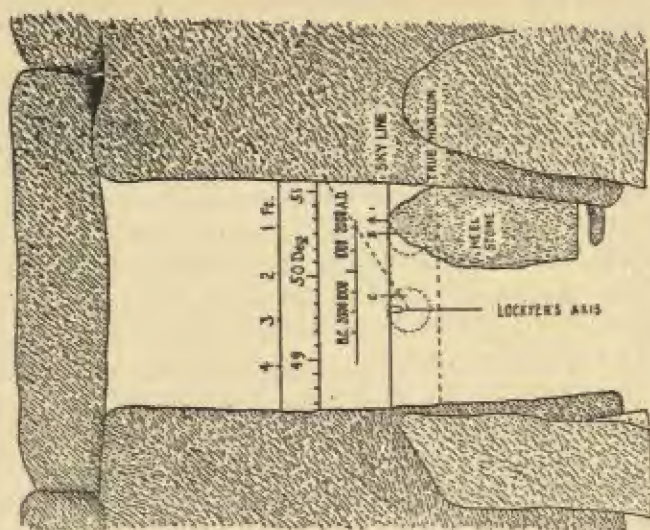


FIG. 2. View of the entrance, from Lockyer's observation point, stone no. 55 being omitted.

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position, another guess must be made about no. 55. No. 56 was set upright after Lockyer's investigations had been made, but before his book on Stonehenge was written. By comparison with the two perfect trilithons (nos. 51-52, and 53-54) and by measurement of the mortice holes of the fallen lintel, he considered that his avenue axis or line of sight passed 11 inches from the south-west side of no. 56. Mr Stone has made a careful examination of this matter and concludes that the distance between no. 55 and no. 56 was not less than 2 ft. 6 ins., and taking the mean, suggests that the axis passes 18 ins. to the right of no. 56, with a possible error of plus or minus 3 ins. Prof. Sir W. M. Flinders Petrie estimated that the distance between nos. 55 and 56 was only 12 ins.

An examination of the two complete trilithons shows that they are considerably weathered, and the mean distance between the uprights nos. 53 and 54 at 5 ft. 8 ins. from the ground (the height of the eye), is about 15 ins., and between nos. 51 and 52 about 10 ins. For this reason, Lockyer's suggestion of 11 ins. (that is, half a distance between the stones of 22 ins.) seems to be preferable to Mr Stone's estimate of 18 ins.; but this is no great matter. As a fore-sight, the business parts of the stones are at eye level. Where is our eye level? This depends on the spot from which the astronomical observations are to be made. The centre of the circle will not do, we cannot aim from between the sights. Lockyer's station is not very conveniently described as "at a distance of 61 ft. to the south-west of the centre of the temple." (He assumed that it was a temple for sun-worship). I find this to be about 33 ft. 8 ins. from the south-west face of the great stone no. 56, or 7 ft. beyond no. 16, a solitary survivor in this direction of the stones of the outer circle. Standing here, with an eye-height of 5 ft. 8 ins., and looking through the entrance, the ground line of the houses which may be taken as the sky-line horizon formed by Lark Hill crosses the stones nos. 30 and 1 at about 6 ft. 1 in. above ground level, and at this height a measuring rod 5 ft. 2 ins. long can be sprung in between them, but owing to irregularities their effective distance apart is 5 ft. It may be significant that they are fairly plumb in their upper half, but have considerable batter or taper in the lower half. The great stone no. 56 is to all intents and purposes plumb on its south-east side.

Lockyer, having ignored the stones, was at great pains to define his axis along the direction of the avenue. He uses the term azimuth. This is an astronomical expression having exactly the same meaning

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as a surveyor's or a sailor's "bearing." Azimuth is measured as so many degrees, minutes and seconds from some zero standard bearing. For example, so many degrees east of north. If north is 0 degrees, then north-east is N. 45 E., that is, the azimuth is 45 degrees east of north. A magnetic compass corrected for the regular annual variation (about 16 degrees west at present), and for any local variation, is generally sufficient for the sailor, but it is not nearly accurate enough for the present purpose. To fix the direction, Lockyer took observations of the North Star and the sun, making, of course the proper corrections. He took also the azimuth or bearing of the spire of Salisbury Cathedral with a theodolite, and found this to be 9 degrees 8 minutes of angle east of south. The object of observing the spire was to enable him to use the Ordnance map as a check. The spire can be seen from Stonehenge on a clear day and by keen sight, or with a field glass. The mean of the two directions of the avenue gave an azimuth of N. 49 deg. 35min. 51 sec. E. Plotting this on a map he found it passed close to the top of Sidbury Hill, which is not visible from Stonehenge. He adopted this Sidbury Hill azimuth N. 49 deg. 34 min. 18 sec. E. as his final axis. Lockyer considered that this difference in azimuth was negligible, and Sidbury Hill could easily be referred to on a map. A sailor would say that the bearing was between N.E. and N.E. by E., or about $4\frac{1}{2}$ points east of north. So far for his axis or line of sight.

The next thing was to observe the sunrise. This was done on the morning of 25 June 1901, by Mr Howard Payn, after four unsuccessful mornings. The sunrise point is so nearly stationary at this time of year that the difference (owing to being four days late) is negligible. Some fixed point had to be chosen on the horizon, for the pegs set out along the avenue would not be visible from the observing point. The tip of the Heel stone most conveniently lent itself for the purpose (A, fig. 2).

It might be said that the process of sunrise is not complete until the whole of the sun can be seen. From an astronomical point of view, the moment of sunrise is when the disc of the sun is cut in half by the true horizon; and again, the moment of sunrise may be said to be that at which the first gleam appears. Practically, Mr Payn allowed enough of the sun to rise to enable him to measure the exact middle of it with his theodolite. It was 2 minutes of angle or about one-sixteenth of its diameter above the skyline of Lark Hill. (B, fig. 2). The angular distance was found to be 8 min. 40 sec. north of the tip of the Heel stone, or an azimuth of N. 50 deg. 30 min. 54 sec. E. This is 56 min.

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36 sec. east of Lockyer's axis, and on this difference his theory of the date of the building of Stonehenge is founded.

As such angular measurements may be unfamiliar to many of my readers, I have made a sketch of the entrance. As seen from Lockyer's observation point, the view is confused by the presence of the fallen no. 55 in the foreground. But by a little study of the subject a sketch can be made as though the fallen stone had been removed. The skyline is now covered with military buildings. Three scales are shown, one of feet, beginning from the right, another of angles of azimuth counting from the north, and the third is a scale of dates in thousands of years. The scale of azimuths gives the angles as seen from Lockyer's observation point, and the scale of dates is calculated from this. On the skyline horizon the middle point (C), is marked. The two directions of the avenue observed by Lockyer are bracketted together; the mean of these is 8 min. 32 sec. north of the middle point. On 26 June 1901, the sun rose close to the Heel stone, as shown, the part below the skyline being dotted. The true horizon is shown by a dotted line. Mr Stone has a somewhat similar diagram, but I differ with him slightly in his deductions from Lockyer's data.

The whole gist of Lockyer's theory is that a long time ago the sun rose at a point in the direction of the avenue, but it does not rise in that direction now. From astronomical knowledge he calculated that the sun rose at this point in 1680 B.C., with an allowance of error of 200 years earlier or later.

Now let us consider some of the astronomical facts on which he based his calculations. I have not found, or expected to find, nor am I indeed competent to find any error in them, and in discussing them I have received great help from an astronomical friend. The earth travels in an ellipse, very nearly a circle, round the sun once in a year. Hold a pencil in the usual slanting position, and move your hand round as though you were drawing a large circle, *widdershins*, or against the hands of a clock. The top of the pencil will point over your shoulder, and will keep pointing in the same direction while your hand moves round. The axis of the earth, in the same way, keeps a slanting position as it goes round the sun, and the north pole points to a part of the sky near the North Star. The axis of the earth is inclined at an angle of about $23\frac{1}{2}$ degrees from the upright position.

Imagine that you spike an orange on your pencil, and have a candle in the middle of your circle. Half of the orange will be in shadow. While you are moving it away from you on the right hand side of the

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circle, or when you are moving it towards you on the left hand side, the pencil will be on the edge of the shadow. When the earth is in one of these positions as it moves round the sun, and as it daily turns on its axis, every point will pass through daylight and through night, and the duration of the day will be equal to the duration of the night. These are called the equinoxes, and occur at about 21 March and 23 September, and the sun rises at 6 a.m. and sets at 6 p.m. But while you are moving the pencil sideways, on the part of the circle nearest to you, the upper or north pole of the orange will be in shadow all the time. The middle point of this position is called the winter solstice. At the opposite side of the circle the north pole will always be in the light; that is the summer solstice. At the equator, sunrise and sunset are at about 6 o'clock all the year round, but at places on the northern hemisphere the daylight will be longer than the night, and the longest day is on about 21 June.

A little further study of this shows that, as most of us know already, at the equinoxes the sun rises and sets nearly due east and west. In the winter the sun is lower in the sky, its path is cut off at each end, and it rises more towards the south-east and sets toward the south-west. In summer the path is high in the sky and it rises and sets towards the north-east and north-west. The exact point at which it rises in its most northerly position is the only one which concerns us in connexion with Stonehenge.

If the earth had this simple motion, the sunrise points on any one day of the year would be the same year after year for ever. But the axis of the earth does not always point to the same place; it slowly passes from point to point and describes a whole circle in 25,800 years. The North Star is now nearly two and a half moon-breadths away from the present pole in the sky, in a direction opposite to that of the last star but one in the tail of the Great Bear. Some 4,000 years ago a star between the tip of the Great Bear's tail and the North Star, served as a North Star, and in 12,000 years the bright star Vega which is now nearly overhead on a summer evening will be near the pole of the sky.

But besides this, the angle of slope of $23\frac{1}{2}$ degrees is not exactly fixed, and the angle is about half a degree less than it was 4,000 years ago. The rate at which this angle changes is known now, more exactly than it was in Lockyer's time, and the latest values according to Newcomb are given in Mr Stone's book. The connexion between this angle and the point of sunrise is a matter of rather difficult calculation, but it is easy to see that if the angle were nothing, if the earth's axis

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were upright as it went round the sun, it would be equinox all the year round, and the sun would always rise in the east. The sloping makes the difference between summer and winter, and (this is the important point) the greater the slope, the more northerly will be the point of sunrise in summer. The result of Newcomb's values as given by Mr Stone is, that the date at which the sun rose in the direction of Lockyer's axis is 1840 B.C. instead of 1680 B.C.

Three possible moments of sunrise have been mentioned. What we are concerned with are the places of sunrise, the positions of the sun at the first flash, the half-risen sun, and the fully risen sun. In passing from one of these positions to another the sun moves along the path shown by the sloping dotted line. If the half-risen sun had been chosen, the date would have been about 3500 B.C. and the fully risen sun would have touched the skyline at Lockyer's axis in 5200 B.C. Antiquaries consider that 2000 B.C. is a reasonable date, and some competent authorities hold that the early works on the site may have dated from 3000 B.C. or earlier.¹

Lockyer's assistant, Mr Howard Payn, found, as I have stated, the angle between the tip of the Heel stone and the sunrise point was 8 min. 40 sec. Mr Stone discusses the observations, and for some reason which is not clear to me gives (p. 129) the angle as 20 min. 19 sec. Lockyer states that his axis passes within a few inches of the middle line of the entrance, the deviation being northwards. This deviation worked out from his observations is 0 deg. 8 min. 32 sec. or 570 years.

As I have said, I agree with Mr Stone that the middle point of the entrance, between stones nos. 30 and 1, is the only one that can be taken for one point on the true axis of Stonehenge. But if you stand alongside the great stone no. 56 on Lockyer's axis, or anyone else's axis, and move your head 5 ins. to the right, and then 5 ins. to the left, you cause the middle point of the entrance to be displaced 10 ins., or one sun's breadth relatively to a point on the skyline, and this makes a difference of 2,000 years in the calculated date. You must settle which eye you are going to use, for the difference of position between your right eye and your left makes a difference of 500 years in the date. I do not think that Stonehenge is a very satisfactory astronomical instrument for the purpose of settling dates. If you go to Stonehenge with the midsummer morning crowd, and get a good place with your back to the end of the fallen no. 55, you will see (weather permitting),

¹[The date, or dates, of Stonehenge cannot yet be determined with precision; but, in the opinion of some, 2000 B.C. is too early.—Ed.]

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the sun rise exactly over the Heel stone,—but then you are not on the axis of Stonehenge.

If no better reasons than the foregoing can be adduced to show that Stonehenge was a temple for sun-worship, could any other purpose have been served by its orientation to the sunrise point? Yes: it was perhaps the most simple way of fixing a date in the agricultural calendar. To investigate the capabilities of Stonehenge as a calendar it is necessary to consider the point from which observations might have been taken. Only one point presents itself, namely the centre of the circle. Let us trace the course of the sunrise point from 22 December when it is at its most southerly limit. (The calculation can be very easily made by using an Oxford Astrolabe, made of celluloid and card, designed after the Persian and other medieval instruments by Prof. F. C. Jenkin of The Engineering Laboratory, Parks Road, Oxford). The view of the mid-winter sunrise is cut off by stone no. 52 of the east trilithon. In the middle of March the sunrise point might have been observed between nos. 3 and 4; but the sunrise point is moving at its fastest rate. On 1 April it would have been seen between nos. 2 and 3 if not blocked by a blue stone, and in the middle of May sunrise might be seen between nos. 1 and 2. It is not worth while to trace the return autumn journey. There are two unhewn boulders and two mounds of earth placed at about 142 ft. from the centre. The sun would have risen over one of them on about 1 February, but the view from the centre would have been blocked by no. 52. Stonehenge was therefore useless for calendar purposes except to fix one date, namely the week (if that can be called a date) of midsummer time.

All this hair-splitting criticism may be applicable to the work of a careful and imaginative astronomer, but is it applicable to such a structure as Stonehenge? I think not. The purpose for which it was built and used still remains a matter of conjecture. Apparently it was never inhabited. It may have been a place of assembly. We may imagine great gatherings for religious ceremonies, or for the administration of justice, or for controversy, or government. It has been regarded as a temple or sacred place. These words originally meant an enclosure, and so far from being a place of assembly, the circle of Stonehenge and the surrounding ditch were, perhaps, to use an expression applicable to primitive religions, *tabu*, and the general public were excluded from them. The sepulchral character of other lesser stone circles has been established by the discovery in them of cists containing interments. Other suggestions are that it was a monument,

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that it was a place of execution where defeated British leaders were hanged in honour of Woden, that it was a calendar in stone for the measurement of the solar year, and so on.

There is a widespread popular idea that on the morning of 21 June something happens at Stonehenge which occurs on no other day of the year, and on that morning the remarkable event is celebrated by chariots, instruments of music, and alcoholic libations, in the form of charabancs, gramophones and beer, to be found there before dawn, and a huge expectant crowd. The builders of Stonehenge may have marked the week, but they could hardly have known the day.

Some calendars tell us which is the shortest day, and one of the leading publishers of diaries has made a mistake about this. It would fall later and later every year did not Leap Year bring it back a whole day. At the end of a century, when Leap Year is omitted, the longest day skips forward from 20 June to 22 June. But the longest day is longer by only a few seconds than the previous or the following day, and this is a matter of rather tedious calculation.

Whitaker's almanack shows that at the latitude of Greenwich in June, the sun rises earlier and earlier until the day comes when it rises at 3.44 a.m. and continues to do so for about a week, and then it rises later. Of course this succession of exactly 44 minutes means that the seconds have been left out. Sunset time is also stationary for several days, and these begin when the fixed sunrise period is ending, because our "mean" time does not correspond with the solar time shown on a sun-dial except on four days in the year. It was impossible that the wise men in the days of the building of Stonehenge, though they knew a good deal of astronomy, could have known anything about this. What they could have done was to observe that the point of sunrise, making long hops in the east in spring, slows down, and creeps to nearly north-east. At last, an observer standing midway under the great trilithon would see it one morning rising close to the north side of the entrance, and its rising point would change less and less each day, and for a period of about three weeks the position of the sun on the horizon at sunrise would move only the width of the sun. The builders doubtless had some such knowledge or had made some such observations before the present arrangement of stones was planned. But to say that this was the purpose and object of Stonehenge seems extravagant. If "sights" to give the most northerly position of the sunrise point were needed, two stones, or two pairs of stones, or two hillocks of earth would have sufficed, and such "sights" are claimed

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to have been found by Admiral Somerville at Donoughmore, co. Cork, and by Sir Norman Lockyer on Dartmoor.

Archæologists tell us that a considerable number of the primitive huts and long barrows are directed to the north-east, but there is no general orientation of stone circles or avenues in this fashion. Stonehenge as it stands is acknowledged to be one of the most elaborate and perhaps the latest structure of its kind. We find highly skilful dressing of the stones, and it must have been erected by very clever men, perhaps in the way so ably suggested by Mr Stone. No wonder then, that when they decided to plan so important a work, whether the present structure or some previous one of which we only have traces, and to plan it with reference to the midsummer sunrise, they carried this out carefully. No astronomical knowledge, no calculation, no mathematical instruments, no acquaintance with geometry or surveying was needed. Lockyer brought a theodolite with verniers and magnifiers capable of measuring the 360 degrees of a circle, the 60 minutes of each degree, and the 60 seconds of each minute, and large scale Ordnance maps, observations of the North Star, corrections for the level of the skyline, and for refraction and parallax, in order to make observations on which he might base his estimates of astronomical changes for dating the building. It may be asked :—What did the builders of Stonehenge know of such refinements, and what instruments did they use? There is a confusion here between the objects and intentions. It was indeed a compliment to them that all this was thought necessary. The old builders simply did the work by eye. It is astonishing to find what accurate work can be done by eye with a well-ploughed furrow, or lining up a long straight fence. He would have a rough eye who could not detect a misplacement of 3 ins. at the end of a gardener's line 57 ft. long. This is equivalent to a quarter of a degree. If we admit that the builders of Stonehenge could work with half of that error corresponding to a difference of 500 years in the date, what proof have we that they actually did so? There is a manifest probability, but to attempt to produce a proof of the date from the axis of Stonehenge is to argue in a circle.

It is easy to bring all sorts of theories and conjectures now that this grand and simple monument is there. We may prolong the axis to the north-east and find it hits Copenhagen; or ten and a half miles to the south-west to the village in which I live; and then down to the coast, passing a little to the right of the megaliths of Carnac, and out to sea to the district where the lost Atlantis may have flourished. And we may prolong controversies about it until we fill a library.

Some Prehistoric Ways

by R. C. C. CLAY, F.S.A.

IN Palæolithic times when each family was self-contained, before social laws and customs had bound such units together to form tribes and clans, the hunters, for such they all were, followed their quarry through the forests and along the valleys, keeping to no set trackways. They needed none, for trackways imply thoroughfares to and from fixed sites or habitations—and the Palæolithic hunter was a nomad.

When the amalgamation of families took place in early Neolithic or Epipalæolithic times, no doubt the marsh-dwellers had recognized paths across the swamps to the mainland, and those who formed the shell-mounds of Ertebolle may have used beaten paths along the shore from estuary to estuary.

With the introduction of agriculture in later Neolithic days,¹ when the beaker and round-bottomed bowl were in daily use, man of necessity migrated to the more open country of the uplands. It is almost generally accepted that at this period animals were domesticated for the first time. Sheep, horses, cattle and probably pigs were bred and herded chiefly for the food their flesh produced, but to a certain extent (in the case of horses) for use as beasts of burden. Dogs were also trained to assist man in hunting. It is still an open question whether the engraved and sculptured heads of horses dating from the Solutrean and Magdalenian periods depict bridles. The horse's head from St. Michel d'Arudy undoubtedly has one. The agricultural and pastoral life of the late Neolithic peoples implies a more settled and peaceful existence, and no doubt there was inter-tribal communication and commerce. Recognized pathways would connect settlement with settlement, and along them would be carried flint from the nearest

¹ Mr A. Keiller has recently found at Windmill Hill, near Avebury, several saddle querns and grain rubbers associated with round-bottomed bowls. This appears to be the earliest proof of corn growing in Britain, but Kossina credits the Ertebolle peoples of Denmark with the cultivation of local grains (see Childe, *Dawn of European Civilization*, p. 16).

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mine. These tracks would naturally follow along the crests of the hills, not only because the valleys were undrained marshes with dense thickets, but also because the habitations to which these tracks led were themselves on the high ground. These old green roads or ridgeways have not been in continuous use. Some at least in South Wiltshire fell into decay during the Early Iron Age. For example the ridgeway that stretches from Coombe Bisset to beyond Wingreen is crossed in many places by the Celtic lynchets and cattle-ways of that period. The parallel track to the north along the range of downs that reach from Salisbury to White Sheet Hill is likewise traversed by cattle-ways that have been proved by excavation to be contemporary with the village sites of Fifield Bavant¹ and Swallowcliffe Down.² Within late historic times this latter road has been metalled and used as a coachroad until supplanted in 1758 by the modern highway along the northern foot of the hills. This ridgeway then became the thoroughfare along which drovers took huge flocks and herds to the distant markets, and many a ridgeway still bears the name of The Oxdrove.³ But now, thanks to railways and motor lorries, the old green road has once more lost its importance in the eyes of the world, and is used only by gipsies and archaeologists. The author of *Early British Trackways*, who despises "antiquarians," would have us believe that such ridgeways were planned by some prehistoric surveyor who sighted a straight line between some church (centuries before it was built) and some round barrow. Barrows, the author states, were primarily designed as sighting points and not as burial places. His argument that roads were made because the barrows were there is putting the cart before the horse. The merest amateur in archaeology knows that barrows are grave mounds, and it is necessary in archaeology, as in all other sciences, to have some slight knowledge of its fundamental principles before attempting to startle the world with new theories.

The dawn of the Early Iron Age synchronized with the full development of the preceding Age of Bronze, one of the most important epochs in the prehistory of this country. At that time there were repeated and perhaps continuous immigrations of peoples along the south coast, especially in Sussex and in the neighbourhood of

¹ *Wilts. Arch. & Nat. Hist. Mag.*, xlii, 457.

² *Ibid.* xliii, 59.

³ The great sheep fairs at Yarnbury Castle, Weyhill and Tan Hill may owe their origin to their position on the junctions of such roads.

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Christchurch and Weymouth;¹ the introducers of the leaf-shaped sword complex, the invaders who brought over the culture of Hallstatt, the importers of the Celtic scroll, the Belgae. Such settlers moved inland by means of peaceful penetration and hence the need of thoroughfares with a general direction of north to south. Roads of this kind would cross the prevailing east to west ranges of the south and may be termed Lateral Ways, for they linked up range to range by crossing the valleys and for the most part took a direction at right angles to the former ridgeways, although at times they themselves joined and were incorporated in the latter. These lateral ways were not new products of the period, but were old tracks through natural passes in the hills, pre-existing fords and former clearings in the wooded valleys, that were developed and came once more into more general use. If all the localized "flint sites" or camping grounds of flint using peoples in an area such as the south-western corner of Wiltshire are mapped, it will be noticed that they appear to be situated close to natural passes in the hills or opposite river crossings, and that they lie alongside tracks which, though now disused in some instances, are mentioned as lanes in the Anglo-Saxon charters and were therefore recognized thoroughfares. Moreover it will be seen that these ways, if traced for several miles, link up chains of camps. As an illustration of this the following section of road may be cited. If we start at Knighton Wood and travel northwards down the road that runs along Church Bottom we pass on the east the square earthwork called Wuduburh² in the Saxon charters and proved by excavation to be of Early Iron Age date.³ Crossing the River Ebble at the position of the modern bridge, the road went slightly north-westwards and up the western edge of the coombe that leads to Chiselbury Camp (Early Iron Age undoubtedly; but that, as Kipling says, is another story). The road can then be traced to the east of Chiselbury into Sigwine's Dyke⁴ (sunken road), then along the foot of the hill for a short distance to reach the Green Drove, and so through the pass called Sandy Hollow over the edge of the high greensand terrace and down to Catherine's Ford over the River Nadder. The road then goes due north over the opposite greensand ridge by another Sandy Hollow with Wick Ball Camp⁵ on the west and past

¹ *Antiq. Jour.*, ii, 27 and *W. A. & N. H. M.*, xliii, 313.

² *Arch. Jour.* (1920), xxvii, 27.

³ To be published shortly in *Wessex from the Air*.

⁴ *Arch. Jour.* (1919), xxvi, 193.

⁵ Very similar in design to Chiselbury.

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Dinton Beeches with Hanging Langford Camp¹ (Early Iron Age) and Bilbury Rings on the east, over the River Wylfe by the ford at Deptford and so past Yarnbury Castle² (certainly Early Iron Age) past Stonehenge and Vespasian's Camp to Beacon Hill. It then divides, one branch being continued on as the Harroway through Weyhill and Hurstbourne to Farnham, the other turning south-eastwards past Quarley, Danebury³ and Woolbury Camps to Winchester and so along the south downs of Sussex. This road with its branches from the River Wylfe has been traced by Dr Williams Freeman.⁴

Before describing double-lynchet Ways it would be as well to define and, as far as possible, explain the mode of formation, or rather the growth of a lynchet. Lynchets are banks seen on the crests and slopes of hills, especially in chalk districts, which are arranged in a more or less regular pattern and which represent the boundaries of ancient cultivated areas. Before the work of Curwen,⁵ Crawford,⁶ and Toms⁷ there was very little definite knowledge on the subject of Lynchets, and many of the guesses as to their purpose were not only incorrect but fatuous. It can now be accepted as an established fact that the area enclosed by Lynchets was once ploughed ground, and that the natural slope of the land has been altered by that ploughing. In order to understand better the nomenclature applied to the different varieties of Lynchets to be described later the method by which these areas were cultivated must be touched on now. Undoubtedly the one-way plough was employed, and furrows were driven always along and never up the slope of the ground. By the one-way plough we imply a plough with one share, probably of wood, that was driven along the slope for a distance corresponding to the length of a lynchet and then brought back empty and the process repeated. In other words ploughing was done in only one direction. It may be argued that prehistoric man would not be so stupid as to waste time in bringing back his empty plough, since the slope in the reverse direction would be as easy as in the outward.

¹ Mr Newall's excavations have proved this site to date from La Tène III.

² Just after the war I examined a portion of the rampart on the north side that had been damaged by a bomb and in the material forming the rampart found a large piece of pottery that is unquestionably Early Iron Age in date.

³ Crawford. *Observer*, 4 Oct. 1925.

⁴ Williams Freeman. *Field Archaeology* (map at end of book).

⁵ Curwen. *Sussex Arch. Coll.* lxiv; also Williamson. *Brighton & Hove Arch.* ii,

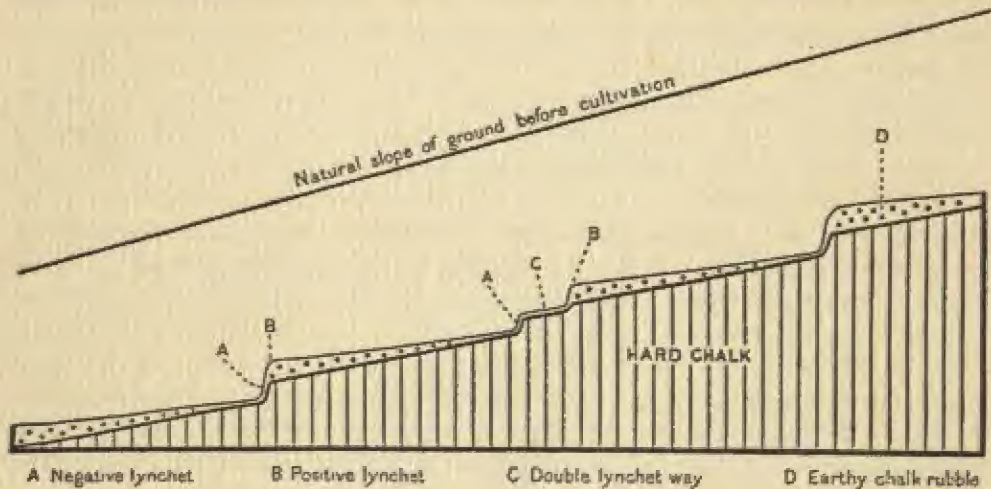
p. 55.

⁶ *Geographical Jour.*, lxi, 342.

⁷ *The Antiquary*, Nov. 1911; also *Proc. Dorset N. H. & A. Field Club*, 1925.

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The answer to this is that prehistoric man did plough in one direction only and that he had a very good reason for so doing. It has already been stated that lynchets are seen on the crests and slopes of hills, and it is readily understood that at the time when these lynchets were formed, the uplands were the only suitable districts for cultivation. The valleys were undrained and consequently consisted of vast marshes interspersed with shallow pools and covered with dense vegetation. Again it is an accepted fact that prehistoric settlements with few exceptions were situated on the hills, and it is only reasonable to suppose that the inhabitants of these settlements had their cornland as close to their homes as could conveniently be. The land they cultivated was naturally sloping, and as such was unsuitable for corn growing in wet weather—we know that the climate was damper in those times—they invented the method of one-way ploughing in order to flatten the slope.



Forty years ago a farmer employed the same method to level a prehistoric vallum on Salisbury Plain. It will be seen that by ploughing in only one direction the result is that an amount of soil equal to the amount of soil in one furrow is transported from the upper side of the area ploughed to the lower. In other words the lower edge gains a furrow of soil each time it is cultivated and the upper loses it—the middle of the area changing in proportion. Thus the area tends to become less inclined, and if the ploughing was continued long enough would become quite horizontal. Turf is a great check to silting, but once the ground is cultivated there is during the season a perceptible

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amount of spreading of the soil downhill. In the same way stones would gradually collect at the bottom of the fields. They would be picked up and placed at the edge. In process of time an area of ground having been marked out and ploughed by this method the lower edge of the field would become raised and the upper cut away like a step. The former has been termed a positive and the latter a negative lynchet by Dr Curwen. What actually happens is that where there is a lynchet system comprising many fields, negative lynchets lie directly under positive, and the whole slope looks like a flight of steps; the tread of the steps corresponding to the cultivated area and the edge of the steps to the top of the positive lynchet. Lateral lynchets consist of the natural unploughed ground, and run up and down the slope of the hill. They are at right angles to the positive and negative lynchets. They constitute the boundaries between adjoining fields and are prominent for the reason that the soil on either side of them has been cultivated, and therefore has somewhat silted downhill, and because they are affected by the flattening of the area they enclose. The natural vegetation on them has been unchecked, and often stones have been picked off the fields and placed on them. This all tends to increase their prominence. In districts where sarsens abound, like the Marlborough downs, lynchets for these reasons have almost the appearance of stone walls. Crawford has distinguished two types of lynchets, the Celtic or chessboard, and the strip. These names explain their shape. Those of the chessboard type are usually on the crests and slopes of hills and are earlier than those of the strip type, which are commonly found at the foot of the slopes and are Saxon in date. In the same paper Crawford points out that the Saxons broke the tradition of hill-top habitation and settled in the valleys, and the natural desire to have farmlands as near as possible to the village is strong evidence in favour of the strip lynchets at the foot of slopes being Saxon in origin. Some at any rate were cultivated down to modern times. Usually the positive and negative lynchets at the ends of fields that adjoin one another laterally, and form a more or less horizontal row divided up into rectangles by lateral lynchets, appear to make a long unbroken bank. Sometimes however when viewed in an unfavourable light so that the lateral lynchets are not seen, the system on a hillside takes the form of a group of parallel short banks placed "en échelon." This is the case when the lynchets on the western slopes of Wyllye Down¹ are viewed from the

¹ Wilts 6-inch O.S. 59 SW.

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road that crosses Bapton Down. These short banks represent the positive and negative lynchets of a chess-board type of system, the lateral lynchets of which are shown up only by an unobscured setting sun. The reason that the vertical rows of fields do not exactly correspond with one another is that cultivation was begun on the west side of the winding road on top of the slope and proceeded downwards to the west, and that consequently the vertical are unequal in length.

Double-lynchet Ways¹ are roads that lead either straight or with right-angled turns through the middle of systems of lynchets of the Celtic or chessboard type. They are in fact farm roads through pre-historic ploughed land, and like all farm roads often lead to village settlements. Mr Wicks and Mr Stoney Smith have lately cut a section through a Celtic field-way on Charney Down, near Bath, and found deeply worn wheel ruts. The surface of a double-lynchet way is the original natural down, while it is delimited on one side by a negative lynchet and on the other or upper side by a positive lynchet. The position of the double-lynchet way in respect to the old cultivated fields determines the character of its edges, so that occasionally when it passes the positive lynchets at right angles, it is delimited by the banks that form the lateral boundaries of the fields. The age of these ways is the age of the Celtic field system which may be anything between the late Bronze Age and the end of the Roman occupation. The question may be asked "Do any of these lynchets date from the late Neolithic period when corn growing was first introduced into England?" The answer is in the negative. In certain localities rough examples of flint picks of the Thames and Spiennes types are relatively common. There is every reason to believe that these implements were used as hoes for cultivating the ground. By cultivating is meant the loosening of the soil after the seed has been scattered over it, a method still employed by some primitive peoples. The only alteration in the natural slope of the ground due to this method would be a very slight flattening caused by the increased silting from soil that is not turf bound.

Hollow Ways or Sunken Roads² are commonly seen running up the chalk escarpments in a slanting direction and taking advantage of the easiest gradients. They lead sometimes to camps or inhabited sites on the crest; at other times they skirt the modern roads that connect

¹ Curwen, *Sussex Arch. Coll.*, lxiv.

² Curwen, *Brighton & Hove Arch.*, i, 36; also Williams Freeman, *Field Arch.*, p. 47.

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valley to valley and possibly are Saxon in origin, for Mr Crawford has shown that none of the riverside villages of Wessex can be traced back further than Saxon times. Many hollow ways lead to former arable land on top of the downs—land that was brought under cultivation during the Napoleonic wars when farming was at a premium. They are not so deeply worn as the prehistoric hollow ways for the reason that they were used for only a limited period. At times hollow ways bear a superficial resemblance to cattle ways (to be described later) when they are bounded by slight banks. These banks however are composed of the soft mud shovelled up from the surface of the road, and are related to the upkeep and not to the construction of the road. Besides, hollow ways lead in a slanting direction along the easiest gradient, whereas cattle ways run directly over the crest of a hill from valley to valley.

Cattle Ways are earthworks consisting of a ditch between two banks that usually run a perfectly straight course and connect the heads of two coombs by passing over the dividing ridge of down. To such structures Sir Richard Colt-Hoare has given the name of "Covered Ways,"¹ and in spite of Dr Eliot Curwen's detailed and exhaustive paper on them,² there is still room for further investigation into the subject and for fresh theories as to their purpose. From an examination of the south-west corner of Wiltshire the following facts are brought to light. These ways are grouped within certain areas which are closely connected with Early Iron Age habitations and are not related with Romano-British villages.³ In these areas the number of cattle ways coincides with the number of opposing coombes that can be connected up; thus they are found close together where there are numerous coombes and widely separated where coombes are scanty. The extent of an area is roughly four miles, the width of an area being the width of the downland. In any one area the width of the ways from crest to crest of banks is more or less constant, but the average of any one area may differ from that of another. The areas of down over

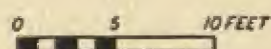
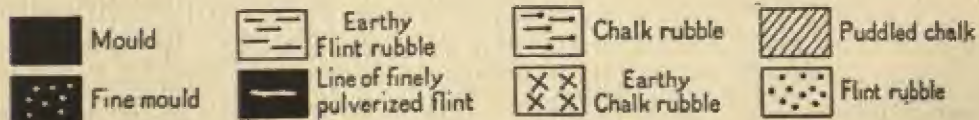
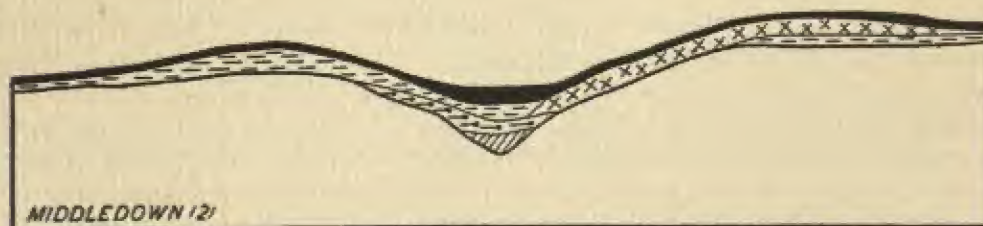
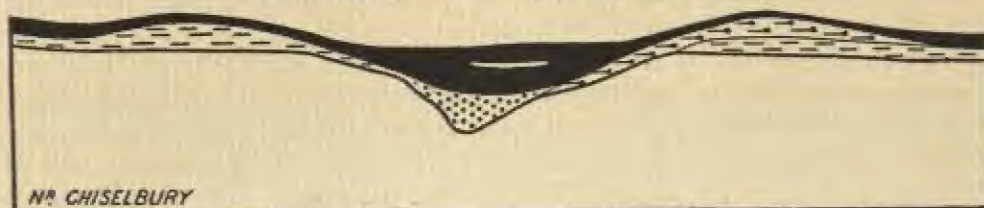
¹ *Ancient Wilts.*, South, p. 244.

² Curwen, *Sussex Arch. Coll.*, lix. See also Warne, *Ancient Dorset*, p. 25. Philips, *The Rivers, Mountains and Sea Coast of Yorks.*, p. 215. Pitt Rivers, *Brit. Assoc. Report*, 1881, p. 690. Greenwell, *British Barrows*, p. iii. Guest, *Origines Celticae*, ii, p. 200. Cole, *Yorks. Geol. & Polytechnic Soc. Proc.*, 1888, p. 45. Mortimer, *Forty Years' Researches*, p. 379. Kitson Clark, *Proc. Soc. Antiq. Lond.* xxiii, p. 309. *Wilts A. and N.H.M.*, xxxviii, p. 69.

³ For example see Wilts 6-inch O.S. 69, NE, SE, and NW.

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SECTIONS OF CATTLE-WAYS



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which these ways run bear surface indications that they were formerly covered by ploughlands divided up into rectangles of the Celtic or chessboard type by lynchets. These lynchets, it is also noticed, are contemporary with or later than the ways, for they run up to and end at the ramparts which are often transformed into either positive or negative lynchets.

Sections have been cut across four separate ways in an area around the Early Iron Age villages of Fifield Bavant and Swallowcliffe Down. These ways are so similar in plan and dimensions that it may be suggested that they were marked out by the same person. They all cross the ridgeway, a fact verified not only by direct observation but by aerial photography and by sounding with a heavy rammer. The cattle way running north-west and south-east across the ridgeway, 200 yards south-west of the Swallowcliffe Down village, was investigated and a section cut through it about 50 yards south of the ridgeway. There were vestiges of a lynchet system on the west side, modifying the structure and shape of the corresponding bank. The material of this bank was composed of earthy rubble with a great quantity of flints but little chalk, while the other consisted almost entirely of chalky rubble with little or no earth or flints. This indicates that the builders of the way constructed the former bank first from the top soil removed from the area intended for the ditch, and then went back to where they had started, deepened the trench and threw out the chalk they reached to form the eastern bank. The explanation is that it is easier to work up hill when digging a trench, and to shovel out the loosened soil to the left provided that the workman is right-handed. It can be presumed that these shovels were of the type commonly used in the Early Iron Age and made of the shoulder blades of oxen with the spines cut down. Dr Eliot C. Curwen has lately published an exhaustive paper on these objects.¹ In the section the hard chalk was found to slope away from under the crest of the ramparts on either side, and then to fall steeply to form a narrow flat-bottomed trench about one foot in width. This floor was covered by a thin layer of very compact chalky rubble, surmounted by a stratum of flints trodden down so hard that great difficulty was experienced in excavating it. Above this the filling of the ditch was comparatively loose. A fragment of pottery undoubtedly Early Iron Age in date was discovered lying upon the trodden flint bed. Beneath the northern bank were

¹ *Sussex Arch. Coll.*, lxvii, 138-45.

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many calcined flints and fragments of sandstone, inferring the proximity of a habitation site. The mould over the trench was very deep, free from flints and chalk and slightly marly ; and it is interesting to note that the grave of the primary Saxon barrow near by¹ was filled with mould of a similar nature which must have come from above the cattle way. Thus the conclusion can be drawn that the latter is Early Iron Age in date and was constructed at a time when the Swallowcliffe Down village was extant.

Many suggestions have been made as to the purpose of these structures, and Dr Curwen has refuted most of them. They were certainly not defensive, for the alpha and omega of prehistoric defence was to be above your enemy and not to stand at the bottom of a narrow ditch ; besides, the making of two banks is a smaller obstacle to your enemy than one high one. Neither were they boundaries of tribal areas, for in places they were too close together. The presence of the hard trodden floors indicates that they were used as thoroughfares for men or cattle—probably the latter as their pointed hoofs would have been more likely to have caused the puddled condition. If they had been covered ways leading down to water supplies or wooded cover they would have run up to the prehistoric village with which we know they were contemporary. The writer's theory is that they were cattle ways along which Celtic men drove their herds in single file from grazing ground to grazing ground without the danger of the animals running over and damaging the crops that grew in the fields covering the high land. At the present day farmers erect a light fence on either side of the path between their cornfields before they drive their cows into that portion of their arable land which they have sown down to rotation grass of one or two years' "lay." The walls of the ditches of these cattle ways are so steep that cattle could not clamber up them, and the fact that they are so narrow is an advantage, for not only does it prevent an animal from turning round and walking back, but it also necessitates the animal's looking forward, and anyone who has had experience with cattle knows that they seldom stop and block the road unless they first turn across the direction in which they are being driven. The fact that these ways begin a few yards beyond the edge of the lynchet fields would facilitate the driving of cattle into them, all that was required would be the presence of a boy on either side of the entry. Cattle soon accustom themselves to a certain path

¹ *W. A. & N. H. M.*, xliii, 435.

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and are in the habit of following in each others footsteps. They will also, if driven, travel directly up a steep incline and not, like human beings, follow the easiest slope.

The following species of Mollusca have been identified by Mr A. S. Kennard, A.L.S. and Mr B. B. Woodward, F.L.S. from material taken from the lowest level of the silting in the cattle way that runs into Chiselbury Camp :—

Limax arborum (Bouch. Chant.)

Helicella nitidula (Drap.)

Helicella radiatula (Alder.)

Arion sp.

Fruticicola hispida (Linn.)

Xerophila itala (Linn.)

Vallonia excentrica (Sterki.)

Helix nemoralis (Linn.)

Cochlicopa lubrica (Mull.)

Pupilla muscorum (Linn.)

Vertigo pygmaea (Drap.)

They state "This is a downland faunule, not of the arid type but indicating slightly damp conditions."

Maori Hill-Forts

by RAYMOND FIRTH, M.A.

MANY a wanderer through the country districts of New Zealand has found interest in the sight of the monumental earthworks which crown so many of our hills. There is something grand and yet pathetic about these old fortresses. Once the scene of turmoil and activity, they now lie neglected and still beneath the sky, clothed in bush, or scrub, or fern, or grass-grown and dotted with sheep. Their day is over, the Maori long since has ceased to swarm on their slopes and man their palisades ; they are but a memory of the warring and the peacemaking, the fighting and the feasting of the eventful past.

In this paper it is my object to give a brief account of the general features of their construction and of their importance in Maori life.

There were in olden days several kinds of permanent settlement which a Maori community might occupy. The specific types need not be enumerated here ; suffice to say that they can all be comprised under two heads : *kainga*, or unfortified villages, and *pa*, or fortified villages. All Maori settlements of the present day belong to the class of *kainga*, but it is to the *pa maori*, the old native fort, that I wish to confine my remarks.

Before engaging in a detailed discussion of the different types of fortification with their variant features, it will be convenient to set down in a brief space the main characteristics of such a stronghold. It was built upon a hill or ridge, or was backed on one or more sides by a cliff, a stream, or the sea. The natural means of defence which this afforded was supplemented by massive earthworks, commonly in the form of vallum and fosse. The fosse alone, or the scarped terrace, was an accompaniment or a substitute according to local conditions. Several lines of defence were constructed, each being surmounted by a stockade in such manner that the defenders, stationed immediately behind it, were enabled actively to ward off any assault. In some parts fighting stages overtopped the stockade, and allowed the defenders more easily to cast down spears, rocks and other missiles upon the enemy beneath. In each line of fortification was a narrow gateway—

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larger *pa* had subsidiary entrances as well—protected by a blind of palisading which exposed the foe to flank attack if he attempted to enter. Within the several lines of defence were dwelling-houses and storage huts for produce. The sections of the fort occupied by different family groups were often partitioned off, while behind the innermost fortification on the highest ground was the citadel of the stronghold, the site of the houses of the principal chief and his relatives, and the rallying point for all the people. Such is in essential the structure of the Maori hill-fort, though naturally local variants of all these points occur.

For comparative purposes it is interesting to note that the earthworks of the Maori stronghold are strongly reminiscent of the British hill fortress of the Stone, Bronze and Iron Ages. On the average, perhaps, the ramparts of these British forts, notably Eggardon and Maiden Castle, are of greater size than those of the Maori, and owing to the less rugged nature of the English countryside, they tend necessarily to be more elaborate. But to one who has spent many of his leisure summer days in roaming among the ditches, terraces and ramparts of the *pa maori*, the aspect of the British earthworks is by no means strange.

The function of these fortresses was apparently the same—to protect their inhabitants from external danger and to serve as dwelling places in normal life. In view of this fact their structural resemblance is noteworthy, raised as they were by the hands of people who are separated so widely by geographical situation, by cultural achievement, and by the span of the long-dead centuries. One needs to postulate no racial affinity nor far-flung cultural contact between the builders of these earthworks; the evidence warrants no such wild hypothesis of antipodal linkage. But to the British archæologist the description of a functionally cognate type of earthwork fortification may prove of interest, especially as the type of evanescent detail which has not been preserved for him in this country is still a matter of knowledge in New Zealand. The tools employed in fosse-digging, the structure of wooden stockades, the use of terraces, the relation of defence to water supply—on these and other points the description of Maori practice can perhaps initiate a fruitful comparison.

The *pa* or fortified village was by no means the characteristic form of settlement throughout New Zealand. As a culture trait of any importance it is to be found almost solely in the North Island, a very few examples occurring south of Cook Strait. Moreover, in its most developed form of hill-fort with earthworks, with which we are here

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concerned, it is very largely confined to the more northerly districts of this Island. Wellington, Hawkes Bay, Napier, do not display many examples, whereas in Taranaki, the Bay of Plenty, the Lower Waikato and the Auckland peninsula they seem to crown almost every prominent hill-top within sight.

It is possible that the distribution of *pa* in New Zealand is indicative of some specific cultural influence, but the evidence at present is far too faint to support any theory. Moreover the prominence of the hill fortress in certain parts of the country cannot be attributed solely to the more warlike character of the inhabitants. The suitability of the soil for entrenching, its fertility as a source of crops (which greatly influences the population, also the desire for the land), the topography of the district, including the character of the vegetation, were important factors in determining the type of defensive warfare to be adopted.

It should be mentioned that these hill-forts vary greatly in age, some having been constructed only a few generations ago, while others have stood for several centuries.

The actual structural features of the *pa maori* may now be considered.

From the point of view of defence the situation of a fortified village is of extreme importance. Sloping ground, even if only of gentle gradient, confers a great advantage both in the construction of defensive works and the repelling of an assault.¹

The Maori was by no means deficient in a knowledge of the principles of fortification, so that rarely if ever did he attempt to construct his *pa* on open land, if an alternative site of any promise was available. Hill-top, cliff, headland, island or jutting crag—all of these were utilized by the native as sites for his defended villages, and some forts were rendered well-nigh impregnable from the outset by the judicious choice of an isolated precipitous rock pinnacle. Further vantage points of a similar kind were presented by the rugged western sea coast, from Taranaki northwards, and along the Auckland peninsula. A water-girded fort was always to be sought after, since it allowed of attack only by canoes or by swimming, hence islands, especially in lakes, were very popular as *pa* sites. In some cases so urgent was the desire for defence of this type that artificial islets were constructed with

¹ See the excellent discussion of this point in Hadrian Allcroft, *Earthwork of England*, 1908, pp. 162-7.

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arduous labour, built up from the bed of the lake, and fortified with stockades. A particularly striking instance is the artificial islet Papawharangi, in the beautiful little lake of Papaitonga. This place was made by driving posts in a shallow of the lake, and sinking between them huge flax mats weighted with stones. Baskets of earth and piles of bracken were then heaped on top, together with other debris, more mats and stones were deposited above and the layer process continued until a substantial mound was raised.

At the present time the islet measures perhaps a score yards in diameter and stands about three feet above the water's edge.

In choosing the site of his *pa*, the Maori was an adept at seizing the advantage of the ground, and when building he was quick to utilize the natural barriers and incorporate them into the scheme of defence.

In a fortress with any pretensions to strength the primary place in the artificial defence system was usually held by earthworks.

These varied in character in different districts, and were adapted to the conformation of the site. Thus, for a headland, a ridge, or a spur, or on a gentle slope entrenchments were the rule, whereas on a rounded hill of steeper gradient such as the volcanic cones of the Tamaki isthmus, scarp and terrace were much in vogue. The most common type of fortification would seem to be the vallum and fosse, which characterized most of the forts of Taranaki, the Bay of Plenty, and the Waikato, and also occur in other localities. It is of interest to note that this was also the predominant type of defensive earthwork employed in the early fortresses of England. The Maori fosse was roughly rectangular or trapezoidal in cross section, the batters were fairly steep and often smoothed off to offer the minimum of foothold. In some cases the firmness of outline has been preserved, but nowadays the sides and edges of most of the old fosses have been broken down by erosion, tree roots, or the trampling of stock. As a general rule the material dug out of the fosse was piled up on the inner side to form the rampart. In this work some type of binding stuff was generally used; brushwood of *manuka* scrub or the tops of bracken were the favourite materials.¹

The rampart was made broad enough for the defenders of the *pa* to stand upon it and wield their long thrusting weapons; it was essentially a structure to serve as an obstacle to assault, and to give the

¹ Best, *The Maori*, II, p. 321; S. Percy Smith, *Maori Wars of the Nineteenth Century*, 1910, p. 364.

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occupants vantage of height and position, not to provide them with shelter from missiles.

Typical dimensions of a few of these earthworks may be given here to illustrate the range of achievement attained by these workmen of old with their primitive tools. A little fort examined by me some years ago at Tamahere in a bend of the Waikato river was defended by a single vallum and fosse, presenting in their eroded state a combined face of some 12 feet in height ; a similar small defended position jutting out from the heights above Muriwai beach was fortified by a single wall some 9 feet high and 3 feet broad on the top. These are but small fighting posts, and represent comparatively insignificant examples of the Maori art of fortification. In the larger *pa* the ditch and rampart were often of great size. The accounts given of native forts by some of the earlier visitors to New Zealand are of especial interest in this connexion, since they saw these structures complete and often actually in use. Thus Cook mentions that the ditch and rampart of one *pa* at Mercury Bay presented a wall 22 feet high, while the inner vallum and fosse of another fort occupied by people at the same place gave a total height of 24 feet, to which must be super-added the stockade, noted by Banks as being 10 feet high.¹

If the fortified village was built on a ridge or a spur running off from a range of hills, then a rampart was often not constructed, but a simple fosse constituted the earthworks. This is the case with an ancient Maori fortress on the west coast of the Auckland peninsula. This *pa*, as Mr Geo. Graham has shown, ceased to be in permanent occupation after the middle of the eighteenth century, and so forms an excellent illustration of Maori fortification in pre-European times.²

The fortified portion of the village was built out on a spur overlooking the sea, which joins the main line of hills by a narrow ridge. The scheme of defence consists of three fosses transecting the ridge, the middle one being the main earthwork. The first fosse is 28 ft. long, 7 ft. deep, 18 ft. wide at the top and 7 ft. at the bottom. The second fosse, the principal line of defence, is a virtual gap cut in the saddle of the ridge. The outer face is not continuous from top to bottom, but is broken by a long step-like terrace 9 ft. down. This terrace, beginning with a breadth of 44 ft. and narrowing down

¹ J. Cook, *Account of a Voyage Round the World*, Hawkesworth, 1773, ii, pp. 340 and 342 ; Banks' *Journal*, ed. by Hooker, 1896, p. 199.

² *Journal Polynesian Society*, 1925, xxxiv, 19-23.

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to about 16 ft., extends along for 52 ft., after which comes the second drop of 12 ft., to the bottom of the ditch. There one is confronted by the inner face, a sheer scarp 30 ft. high. The fosse is 16 ft. long, and as it falls away to a cliff at either end it can be seen what a formidable obstacle it was in olden days, when a palisade crowned the scarp and the defenders of the fort were massed above, ready to hurl down death on those who attempted to force the passage.¹ The labour needed to dig out this terrace and trench must have been very great; at a rough calculation some 800 cubic yards of material have been scooped out from the ridge altogether. Further along the spur is another smaller trench, 32 ft. long, 12 ft. wide, and 10 ft. deep, which represents the innermost line of defence, but which appears of little moment in comparison with the large fosse. All these three ditches cut right across the ridge from cliff to cliff.

On the Tamaki isthmus and in the vicinity of Auckland the combined vallum and fosse was not the predominant type of fortification. The scoria cones of this district appear to have lent themselves to scarping, and so we find terrace after terrace rising to the crown of the hill, looking from a distance like the stairways to a temple of the giants. These old volcanic landmarks, with tier upon tier of grassy platforms, each pitted with the hut sites and storage pits of a century ago are a picturesque sight. And standing on the crest of any of the larger of these forts and scanning the countryside, one can see the slopes of half a score of others, each terraced and scarped from base to crown. Their numbers give evidence of the teeming population that once tilled the soil of the isthmus, that fertile soil for which tribe fought tribe till the narrow neck of land received the name of Tamaki-makau-rau—Tamaki of a Hundred Lovers.²

Details vary according to the particular fort studied, but on the larger hills such as Mangere, Maunga-rei (Mount Wellington), Maunga-whau (Mount Eden), and Ihumatao, the terraces are commonly 20 to 30 ft. wide, separated by a sloping bank or scarp of anything from 10 to 40 or 50 ft. in height. Sometimes the terraces completely encircle the hill, at others they are broken up into short stretches or platforms resembling the lynchets of English slopes. The scarping of these hills for fortification purposes has been somewhat complicated by the

¹ For a full account of this fort with plan and photographs see the writer's paper "The Korekore Pa," *Journal Polynesian Society*, 1925, xxxiv, 1-18.

² In recent years the valuable researches of Mr Geo. Graham have thrown much light on the history of the isthmus and its hill-forts.

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fact that they are extinct volcanic cones, and in most cases the deep funnel-like depression of the original crater still remains in the centre. Consequently the site is robbed of a broad expanse at the top of the hill which might serve as housing space. This restriction of available space for dwellings on the crest of the hill to a comparatively narrow band encircling the crater partly accounts, I believe, for the labour taken to excavate such broad platforms. That these terraces were thickly occupied is proved by the innumerable house-sites which pit them, and by the presence in some parts of great numbers of hearth-stones, set on edge in the ground in the form of a rectangle to line the fireplaces of the former dwellings.

On volcanic hills where the lip of the crater has been broken through after the eruption a hollow or gully remains, and offers an easier ascent to the crest than up the main slope. The utility of this to potential attackers was perceived by the Maori and so he modified his defences accordingly. On Maunga-rei, Green Mountain, and other hill-forts near Auckland, one observes at such a spot not a continuity of terrace formation, but a series of short platforms or lynchets each 10 or 15 yards long and separated from its neighbour by a scarp of five or ten feet. These are so arranged that even should the foe make use of the easier gradient of the depression of the crater lip, he would not find himself within the line of palisades but would still have to face the cross stockades of numerous defended lynchets. A formed rampart is rare on these terraces, more often there is a slight slope of the terrace floor inward towards the centre of the hill. On the brink of each terrace a stockade was formerly set. The scarps of such terraces or ramparts were ascended by means of the usual Maori ladder, a single timber with notches cut therein; ditches were crossed by a rough draw-bridge constituted by a few planks.

On the use of stone in fortifications there is not much to be said, though it was sometimes adopted as a facing material for the scarp of terrace or fosse. Stone walls were sometimes built as at Te Tatua (Three Kings) or other places on the isthmus where the rocky surface favoured such a method.¹ Again on the smaller of the Poor Knights Islands (Tawhiti Rahi) stone walls occur, and my friend Mr R. A. Falla (to whom I am indebted for a description and photograph) is of the opinion that they were probably used as defensive works.²

¹ Geo. Graham, *Journal Polynesian Society*, 1921, xxx, 146.

² Terraced forts with the scarps faced with stone have also been described from Rapa-iti, in the Pacific, by S. and K. Routledge, *Jour. R.A.I.*, 1921, li, 454-5.

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In connexion with the earthworks of the Maori *pa*, reference may be made to the technical apparatus employed in excavation. This point is perhaps of some interest in view of the opinions expressed by British archaeologists as to the nature of the tools used in the construction of the hill-forts of this country.

The tools of the Maori were simple but effective. In the work of excavation and removal of soil three processes must be undertaken ; the loosening of the earth, the gathering of it together, and the carrying of it away, and the Maori had a type of implement corresponding to each of these purposes. Elsdon Best, than whom none has a greater knowledge of the native, gives a short description of these tools,¹ on which the following remarks are based. For loosening the earth the principal tool was the *ko*, the narrow-bladed, long-handled digging stick utilized in cultivating the soil for crops. A foot rest was lashed on the front of the shaft of the tool about 18 ins. from the point, and the foot pressed sideways on it, to give the weight in digging. In working at a *pa* a short form of the implement was also employed. For loosening earth once the sod was removed a paddle-shaped tool about 2½ ft. long was used ; while for collecting together and clearing the loose soil from the trench a spade-like tool was used, or a form of shovel, having a rectangular blade with a rim at the sides. Two examples of shovelling implements, rimless, are in the British Museum, the one with a rectangular, the other with an almost semi-circular blade. Another type of implement also employed was scoop-shaped, somewhat like a canoe bailer. All these tools are of wood. When the earth had been scooped or shovelled up, it was put into baskets of native flax or wickerwork and taken up to form the rampart above the ditch. Such was the technique actually employed in excavation by the neolithic Maori of little more than a century ago.²

The massive earthworks of the Maori fortress were usually supplemented by less bulky structures of wood, which screened, crowned or

¹ *The Maori*, II, 320-1.

² Allcroft, *op. cit.*, p. 167n. contrasts the skill in fortification of the Maori with their ignorance of other arts and crafts, and regards them as being a very primitive people. But material equipment alone should not be taken as the criterion of culture. In decorative art, music, poetry, the Maori had reached a high standard. It is quite incorrect to say of the Maori that "They were in fact, in the Palæolithic stage of culture." They were a neolithic people, well advanced in the arts of grinding, polishing, and drilling stone, even the *pounamu*, the green jade, which is known to modern lapidaries for its hardness.

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overlooked them as the case might be. These were of two general types :—stockades and fighting stages.

The stockade had many uses. It was erected on the top of a rampart, on the brink of a terrace or a cliff, on the outer face or counter-scarp of a ditch, or stood alone on open ground. The general form of the stockade was that of an upright fence. Strong posts, even trunks of trees, two feet in diameter, were set deep in the earth two or three yards apart, and to them horizontal rails of saplings or split timber were lashed. To these again the palisades or battens of split wood were fastened vertically at intervals of a few inches by vine lashings. A fort might be defended by stockades alone, without the use of ramparts, but a *pa* of the first rank was protected by ramparts, fosses, stockades, and fighting stages. According to the principles of Maori military engineering, such a place of importance might be expected to have four lines of stockades, each having its proper name and function. The outermost was a comparatively light structure, after the nature of an elevated screen; the supporting posts were of no great size, the battens were lashed to the horizontal rails but were not inserted in the ground. A gap of about a foot was left at the bottom, to enable the defenders behind the second stockade to wield their long thrusting spears with freedom. The second line of stockade stood two or three feet back and was more strongly built. Three horizontal rails were used as a rule, and these were lashed to the inner side of the posts. The battens were then lashed to these on the inside again. Thus the structure was of great strength, and on any force being exerted to pull down the battens, the strain was taken by the massive supporting posts. The lashing was done with pliant stems of the tough *aka* (a climbing plant) usually with a cross tie.¹

The third line of stockade in such a fort was the main one. For this the supporting posts were twenty feet or more in height, set five feet or so in the ground. The upper part of the post was cut as a knob, or carved in the form of a human head or grotesque figure of terrific aspect, with glaring eyes and lolling tongue. The main gateway, opening in this line of stockade, was often hewn from one mighty baulk of timber. Within this again was the fourth or innermost stockade, of somewhat lighter construction.

¹ The same material is employed to-day by the natives of certain forest districts, to lash their wooden fences. A native of Ruatahuna explained that the *aka* stems (of which several varieties are employed for different purposes) are cut some time before use, laid out in the open to dry and toughen and then steeped in cold water to render them supple.

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Such are in native theory the stockade defences of a fully equipped fortress of the first rank.¹ In actual fact, however, many varieties of this type occur, and the adaptation of earthworks to the contour of the ground involves many modifications of the stockade scheme. A reference to the actual defensive works of a few typical *pa* of various kinds will indicate the variety of combination of earthwork and stockade employed, and the versatility of the Maori military engineer in turning to account the disposition of the ground.

On the terraced hill slopes of Maunga-rei, Matangi-nui, Rara-tonga—forts of the Tamaki—for instance, scarp and stockade alone were employed and a series of these, varying in number according to the size of the hill, constituted the defensive works of the stronghold. One of the *pa* referred to above, as being seen by Captain Cook at Mercury Bay in 1769, was situated on a headland, two sides of which were washed by the sea. The whole fort was enclosed by a stockade about ten feet high. On the landward side it was defended by a double ditch, the inner of which was backed by a rampart surmounted by this stockade. Another stockade was set on the outer brink of the ditch, so placed that it inclined inwards towards the fort. This somewhat unorthodox disposition of the stockade enabled defenders upon the ramparts to thrust down their spears without hindrance. The anonymous author of the *Journal of a Voyage Round the World* (pub. 1771), quotes a native chief to the same effect. This man explained that if the stockade pointed outwards, the enemy would find cover behind it, and could not be dislodged by the people in the *pa* (p. 99). The interior of the fort was rising ground, and a series of terraces had been formed therein, each enclosed within separate walls of palisading. These enclosures communicated with one another by narrow lanes which could be easily stopped up. The only entrance to the *pa* was by a narrow passage 12 ft. long, which passed under a fighting stage.²

In 1814 Nicholas entered a *pa* at Rangihoua, Bay of Islands, which he describes as being defended by a wide and deep fosse with a stockade of great strength on the inner side. Palisaded enclosures divided off the huts, and carved "stiles" (of the nature of notched post-ladders) were used as a means of entry to them.

The house of the chief, as was customary, occupied the highest

¹ See the excellent description giving full native terminology by Best, *The Maori*, II, 321-331.

² Cook, *op. cit.*, p. 340. Banks, *op. cit.* 199.

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part of the hill.¹ Another *pa* on the south side of the Bay was defended by a fosse and vallum and then a stockade. To render the place still more inaccessible a great part of the hillside had been cut away and the face made quite precipitous.² A stronger fort was that of Okuratope near Waimate, seen by Marsden and Nicholas in the same year. The first line of defence was a strong stockade of heavy posts 20 ft. high, the only entrance being a narrow opening 5 ft. high by 2 ft. wide. At a short distance from this came a "moat" at least 9 ft. broad, filled with water—an unusual mode of defence for the Maori—backed by a steep rampart on which stood another stockade of similar strength to the first. After an intermediate space of 80 ft. or so came a steep scarp about 15 ft. high, crowned by a third stockade that encircled the *pa* and completed the defensive works. This *pa* contained over 100 houses and store huts, and was occupied by 200 to 300 people.³

The Manu-korihi *pa* in Taranaki, surveyed in 1842, displayed a triple line of major earthworks with a subsidiary ditch covering them in front. On two sides the *pa* was protected by a cliff with the river flowing along part of its base, and here a stockade along the cliff edge sufficed. But on the open side came the earthworks, each of the three lines comprising a fosse, and behind it a rampart, crowned with a stockade.⁴

These few instances, drawn mainly from the accounts of early observers when the Maori *pa* in all its strength still constituted an integral feature in the life of the people, indicate the difference in the methods of fortification, and the varied manner in which stockades were utilized as defensive works.

Wooden erections of the other type were also used in many forts as a basis for defensive operations. They were the fighting stages, elevated platforms 20 ft. or more in height, set on massive posts to overtop rampart or stockade. Banks (*op. cit.*, p. 199) notes that one stage was 20½ ft. high, 6½ ft. broad, and 43 ft. long, while on it were laid bundles of spears and heaps of stones to be cast down for the discomfiture of the enemy beneath. These and similar stages were

¹ *Narrative of a Voyage to New Zealand*, 1817, i, 174.

² *Ibid.*, pp. 269-70.

³ Nicholas, *op. cit.*, i, 336-7.

⁴ A. Hamilton, *Maori Art*, 1896, p. 123 (plan).

NOTE.—Marsden, *Missionary Register*, Dec., 1816, pp. 502-3, says in his description that there were three rows of trenches. This discrepancy may be partly due to his having included the scarp in this category. But if his account is correct then the *pa* was defended still more strongly than represented above.

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also used by the watchman or sentry who in troublous times was posted there to give warning of the approach of an enemy. On this stage often hung a *pahu*, a large wooden slab suspended by cords after the manner of a gong, which gave out a resonant booming sound when struck, and served to warn the inhabitants of the fort and of the nearby countryside.

A few words may now be devoted to a discussion of the value of the *pa* in warfare. The somewhat tedious description of the various types of defensive works has given some indication of the strength of these old forts and it is clear that many of them were almost impregnable to direct assault. Sometimes breaches were made in the palisades by pulling down battens with a bar and rope thrown over them, and fire was a weapon which reduced many a fortress. But very frequently other measures were necessary. Hence the many accounts we have in Maori tradition of surprise attacks—at daybreak, up little-used cliff-paths in the dark, in a storm when no sound of men's feet could be heard; of masquerades of war parties as peaceful fishermen, as returning village people, or even as gigantic sea fish; of treachery—a secret opening of gates, or a false peace and an unexpected return. Records of Maori warfare form a dark tale of ambushes, stratagems, treachery and ferocity, mingled with a tactical ability and a rude chivalry that compel admiration. At times none of these ways of attack seemed feasible and the *pa* was besieged.

Now practically all the cultivations of the people lay outside the fort, so that to be able to resist a siege stocks of provisions had to be kept inside the enclosure. Vegetable foods were stored in pits underground and flesh foods were dried and preserved in storehouses or on tall stages. But the weak point was usually lack of water. As a rule the hill-fort had no spring within it, and anyone venturing out to get water was cut off by the besiegers. In some forts attempts seem to have been made to keep an artificial supply. On occasions water was stored in gourds. Best¹ describes and illustrates the use of underground pits as reservoirs for the precious fluid, while some of the bottle-shaped subterranean chambers at Korekore were probably utilized for the same purpose.² But as a rule water storage was of a very elementary kind, and time and again a beleaguered fortress was taken or surrendered through lack of water. Nevertheless the siege was often a protracted affair, lasting for days or even weeks,

¹ *Dominion Museum Bulletin*, no. 5, pp. 81 sqq.

² Firth, *op. cit.*, pp. 9-10.

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while one blockade, the longest recorded, endured for seven months.¹

Despite the preoccupation of this paper with the Maori *pa* as a fortified position, it must not be imagined that it was purely a war-time dwelling. It was not only a military stronghold; it was the home of the people, the centre of their social and economic life as well. Excluding a few defended posts on isolated rock pinnacles, which served as occasional retreats only in time of stress, the average Maori *pa* was a place in permanent occupation. And the economic aspect of the settlement was not lost from view. The site, though primarily selected for its defensive character, was also chosen for its proximity to sources of food supply—to fertile soil, fishing grounds, or a forest where birds were plentiful. It is as the home of the people, the centre of their social and economic life, no less than as their defensive stronghold and the focus of their military activity that the Maori *pa* has its peculiar interest for the archaeologist, the anthropologist and the prehistorian.

In conclusion I wish to acknowledge my indebtedness to Mr Elsdon Best, on whose well-known writings I have drawn liberally at certain points in this paper. My thanks are also due to Mr O. G. S. Crawford for references to the literature of British earthworks and to my friends Mr and Mrs Philip Williams of Bridehead, Dorset, to whose kindly thought I owe my visits to Eggardon and Maiden Castle.

The literature on Maori hill-forts is scanty. The following list gives the more important papers dealing with the subject and also the relevant sections of more general works. Incidental references will be found in the footnotes of the foregoing article.

ELSDON BEST.—"Stockades and Earthworks in New Zealand." *American Antiquarian*, 1895, xvii, 154-6; *The Maori*, 1924, ii., ch. xv, pp. 304-52; "The Pa Maori," *Bulletin Dominion Museum*, 1926, no. 6, Wellington. This is a fully documented and authoritative work with plans and illustrations.

RAYMOND FIRTH.—"The Korekore Pa: an ancient Maori Fortress." *Journal Polynesian Society*, 1925, xxxiv, 1-18.

A. HAMILTON.—*Maori Art*. Dunedin, 1896, pp. 71-9; 121-9.

W. H. SKINNER.—"The Ancient Fortified Pa." *Journal Polynesian Society*, 1911, xx, 71-7.

S. PERCY SMITH.—"Maori History of the Taranaki Coast." *Memoirs Polynesian Society*, 1910, vol. i, *passim* (plans, photographs and descriptions of *pa*).

¹ S. Percy Smith, *History and Traditions of the Taranaki Coast*, 1910, p. 365. For other instances of sieges see *Ibid.* pp. 244, 246, 288, etc.; also Best, *op. cit.*, pp. 335-8. The occurrence of such sieges of *pa* in Maori warfare is an interesting commentary on the opinion expressed by A. H. Allcroft (*op. cit.*, p. 210), that "of sieges, and blockades, it is practically certain the prehistoric period knew nothing. A single rush, a succession of rushes, at most a day's assault, was all that was to be feared." Such was not the case with the neolithic Maori.

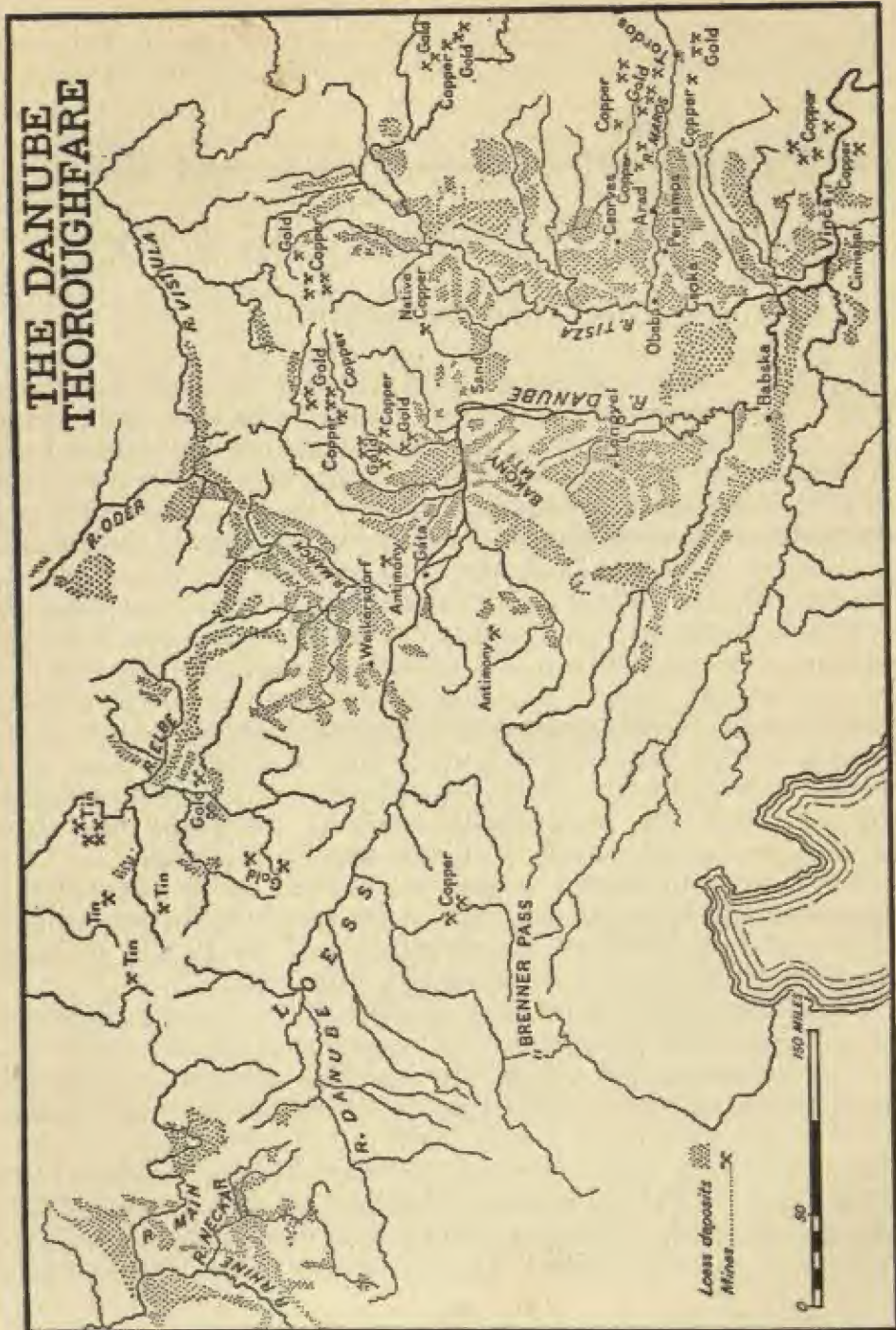
The Danube Thoroughfare and the Beginnings of Civilization in Europe

by V. GORDON CHILDE

WHILE high civilizations were growing up in Mesopotamia, Egypt, and the Aegean, continental Europe was still recovering from an ice age. Though the glaciers had retreated, the high passes that led across the Alps from the favoured Mediterranean to the interior were still virtually closed by snow. The tundras and steppes where the men of the Old Stone Age had hunted the reindeer were now for the most part covered with a dense forest fostered by the damp climate then ruling. Through the belt of forest and mountain that fenced off northern and western Europe early man could not easily penetrate. To reach Britain or Denmark he must take ship and face the perils of the Atlantic in a dug-out canoe or some only slightly superior craft. But one moving road leads right into the heart of the continent. From the Black Sea to Bavaria the Danube opens out a passage way far safer than the stormy Atlantic. Moreover it leads into territories where the uncongenial primeval forest did not grow so densely nor so inhospitably as on the coasts or highlands.

Large tracts in Central Europe are covered with a deep deposit of fine wind-born dust that had formed during the dry ice ages. This aeolian soil termed "löss" is unfavourable to the growth of heavy timber, incidentally it provides ideal agricultural land.

Sailing up the Danube through the Iron Gates, a voyager from the Aegean would come upon high folds of open löss, actually cut by the river, in Serbia and then again, after passing a stretch bordered by swampy alluvium, above Buda Pest. From the Austrian Danube patches of löss interrupted only by belts of forest land constituted an inviting path to the head waters of the Oder and the Vistula. From the löss plains of Moravia it would have been possible to reach similar patches in Bohemia. Thence the Elbe invited descent and led on to the löss areas of Saxo-Thuringia. Up the Danube from Vienna smiling



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löss lands opened out in lower Bavaria above Passau, once the forbidding valley between the Wiener and Böhmer Wälder had been negotiated.

Beyond the Swabian Jura, which in places was neither really precipitous nor very densely forested, lay more open country in the Neckar valley and then on both sides of the Rhine. That river might also be reached without much difficulty from Thuringia by way of the Main valley; and, once on the Rhine, an adventurer might easily be tempted down stream to the North Sea or, branching off westward, into the löss lands of Belgium and northern France. Thus a veritable corridor lay open right across the centre of Europe.

But the Danube did more than lead to lands fit for settlement. In its valley are many lodes of ores and precious metals. The mountains of north Serbia are veined with copper ore and lodes of cinnabar and galena. The richest gold fields in Europe are situated in western Transylvania. They can be most readily reached from the Danube by following the Tisza and the Maros. It was by this route that the informants of Herodotus communicated with the El Dorado of the Agathyrsi. The same mountains contain copper ore. There is more gold and copper in the mountains of western Slovakia again accessible from tributaries of the Danube. And in Bohemia are deposits of tin—a rare metal which in antiquity was in great demand from the moment bronze was discovered till it was replaced by iron.

Finally the shoals of sturgeon and other excellent fish that swarm in the waters of the lower Danube would tempt explorers to venture up stream there to discover the prizes of land and minerals just enumerated. That early men from the civilized Aegean yielded to these temptations, discovered these prizes, and diffused their culture along our corridor, we shall now briefly show.

It must be remembered that the shores of the Aegean can only feed a very limited population, and seldom offer a more inviting hinterland. Until a regular system of industry and trade makes it possible to supplement local food supplies by imports from abroad, the population must be continually overflowing. Even in early historical times, when the rudiments of a commercial system were already growing up, the Greek cities of the coast were constantly forced to find an outlet for surplus citizens in colonization. And the further we go back in time the more urgent must this need have been. Geographical conditions had determined that the colonists must proceed by sea. And it is well established that man became an adventurous navigator at a

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surprisingly early stage in his career : in Scotland even before he had learned to polish stone, to cultivate grains, or to tame cattle and swine.

It is therefore intrinsically probable that peoples in the earliest food producing stage of culture should already have found their way through the Hellespont and have reached the Danube mouth. The shoals of fish would then entice them by gradual stages up the river. The early steps in their progress will perhaps be revealed when the numerous mounds in the Dobrudja and in north Bulgaria have been more thoroughly explored.

At the moment the lower Danube has yielded only isolated clues to be mentioned below. Clear vestiges of the first settlement begin above the Iron Gates. An ideal halting place for primitive fishers sailing up the Danube would have been Vinča, a little below Belgrade. Here a fold of löss comes right down to the river bank ; at the foot of the ridge a brook flows into the Danube ; incidentally, in the immediate hinterland is a deposit of cinnabar where traces of ancient workings have been observed. The open löss hillock, raised above the reach of floods, was certainly early occupied by men ; the accumulated ruins of their huts and refuse have raised the level of the land by some 8 metres. The site has been very carefully excavated by Professor Vassits of Belgrade, who distinguishes at least three phases of culture—these we may term Vinča I, II, and III.¹

Material precisely similar to that from Vinča I is found at other sites further north, notably at Csoka on the Tisza (opposite Zentas) and at Tordos on the Maros. Csoka like Vinča stands upon a ridge of löss cut by the river ; Tordos, similarly situated, lies in the heart of the auriferous region of Transylvania. The location of these ancient settlements along the classical way of approach to the gold fields is significant. The first inhabitants of these settlements were cultivators who tilled their fields with stone hoes (what are generally termed "shoe last celts") but at Vinča and Csoka they also caught sturgeon and other fish with the aid of horn harpoons, parallels to which come from the lower Danube in Bulgaria and from Kizil Köi on the shores of the Bosphorus. They dwelt in "pit dwellings," oval excavations in the soil roofed with wattle and daub. What interests us is their affinities to the Aegean peoples as revealed in their handiwork. Their religious paraphernalia provides one indication ; they manufactured rude images of a female deity in clay as did the early folk of Crete,

¹ Vinča : M.M. Vassits in *P.Z.* ii, and *BSA*, xiv.

PLATE I



1.—FIGURINE, ČARŠIJA (= VINČA II)



2.—LID, VINČA I

NATIONAL MUSEUM, BELGRADE

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Greece, and Anatolia. Miniature altars—little clay tables with four legs—were modelled for purposes of cult as in Thessaly from the earliest period on.

The pottery shows more distinctly the fundamental kinship; for the history and traditions of a primitive folk are often crystallized in their pottery. The commonest variety is a black-faced fabric decorated with incised patterns akin to what has been termed "black Mediterranean ware."

A very favourite ware at Vinča also used at Tordos was decorated by burnishing highly narrow strips of the surface so that the pattern stood out in a shiny black on a grey ground. The same technique was in use at Boz Euyuk in Phrygia during the third millennium B.C. and in Thessaly in the second neolithic period. At other times the ornament takes the form of shallow flutings which may be exactly paralleled in both the areas mentioned and also at the early cemetery of Yortan in Mysia.¹

Another ware, better represented at Tordos than at Vinča, is red outside save near the rim: the inside and the strip near the vessel's mouth have been blackened by the reducing action of the ashes and carbon monoxide upon the iron oxide in the clay. The same feature is characteristic of the pre-dynastic pottery of Egypt.

One style of vase manufactured in this ware was a goblet with a tall solid stem; the same form occurs in red ware at Troy II and, in a different fabric, in neolithic Crete.

Many pot lids from Vinča I, Csoka and Tordos have been modelled to suggest a human face (plate I, fig. 2). Similar anthropomorphic lids were manufactured in large numbers at Troy.

Finally many vases have odd "proprietary marks" scratched on them. Many of the signs employed can be paralleled on spindle whorls from Troy II, and on pots from pre-dynastic Egypt (fig. e, p. 88).

None of these analogies refer to portable objects of a sort likely to have formed the vehicles of primitive trade. They suggest rather an ethnic connexion between the first settlers at Vinča and the peoples of the Aegean. Quite naturally the closest parallels are with the manufactures of Troy, the great settlement that stood on the waterway between the Aegean and the Danube mouth. That does not so much

¹ Polished and fluted wares in Thessaly; Wace and Thompson, *Prehistoric Thessaly*, pp. 102, 105, 114. The stratification shows that they belong to the second period—not as Tsountas thought to the third.

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imply that Vinča was a colony from Troy, but rather that the first Serbians (or some of them) were a branch of a stock that settled also on the shores of the Hellespont; for characteristic Trojan forms, *e.g.*, jugs and cups with handles, are entirely lacking as yet on the Danube.

But another class of objects show that this racial kinship was cemented by continued commercial intercourse. Vinča and Tordos have yielded clay vessels that imitate stone vases, marble pendants comparable to the marble "owl idols" of Troy II, and even copper beads. The Vinča I people wore shell bracelets, possibly imported from the Aegean, and stone bracelets were fashionable at Tordos.

As raw cinnabar ore was found in the lowest levels at Vinča, this may have been one article of commerce, but naturally the trading activities extended to Tordos. So the little settlements of Aegean fishers became outposts of Troadic commerce.

But the Danube leads far beyond Vinča and the civilizing current was not all diverted to Transylvania. In lower Hungary there were no accessible löss patches abutting on the river. Those reaches, particularly when the heavy rain on the Danube catchment swelled the river above its present level, ran through inhospitable swamps where no trace of settlement is to be expected or has in fact been found. But on the löss lands of Moravia¹ a culture flourished which has many analogies with that of Vinča I. Its authors were peasants in the stage of garden culture. They tilled their plots with the same stone hoes as the Vinča folk. They cultivated in them a species of wheat² (*Triticum monococcum*) which was also grown at Troy and in Thessaly and (at a later date at any rate) in Bosnia and Hungary. They lived in rude pit dwellings like those of Vinča I; they sometimes manufactured clay idols of naked women again like those of Vinča; they ornamented their vases with plastic animals' heads—a procedure also noted at Vinča (plate I). The vases themselves are said to imitate gourds which will certainly not ripen north of the Bakony to-day, but may in those days have served for vessels in Serbia as they certainly did in Anatolia.

What is most striking, the people of Moravia imported the shell of a Mediterranean mussel—*Spondylus gaederopi*—to wear as bracelets. This is perhaps the very shell that was worn in Vinča I and in any case hoards of them have been found in Bulgaria.

¹ Danubian culture: Childe, *Dawn of European Civilization*, 1925, pp. 171-183.

² See Kozłowska, in *Bull. Internat. Acad. Sci. de Cracovie*, 1920, B, 1-10.

PLATE II



DANUBIAN I POTTERY FROM MORAVIA
MORAVIAN MUSEUM, BRNO

facing p. 84

THE DANUBE THOROUGHFARE

Whether these Moravian peasants actually came themselves up the Danube is immaterial ; their culture did. Its affinity with that of the middle Danube has just been demonstrated ; its meaning is unambiguous. The grain cultivated did not grow wild north of the Balkans ; the domestic pigs were probably sprung from a race (*Sus vittatus*) native to Hither Asia ; the sheep had a like origin in the Asiatic *Ovis vignei*.¹ These animals and plants can therefore only have been brought up the Danube : the process is not reversible. The civilization that had thus come up the Danube does not stop short in Moravia. Its authors, commonly termed Danubians, were not yet tied to any fixed place by commerce ; they had settled where good land was available. At the same time their methods of cultivation compelled them to move on. Like peoples in the same stage of culture to-day in the Sudan or north Borneo they had not learned the secret of rotation of crops. Hence to obtain a good yield they must bring fresh strips of land into cultivation every two or three years. Their wretched pit-dwellings were easy enough to build, and would soon become uninhabitable. So the settlements were moved periodically, every twenty years at least, judging by modern analogies. In any case no site was occupied long enough to form a mound such as we saw in Vinča. Moreover, as the populations grew, each community would send out colonies just as the negro cultivators in Uganda do to-day. And so the Danubians spread slowly but surely over the löss. They planted their settlements in western Galicia and Silesia. They crossed the divide into Bohemia, they spread down the Elbe and up the Danube, they forced their way through the forests to the Neckar and the Main, they occupied the whole Rhine Valley ; eventually they colonized the Hesbaye district of Belgium.

Everywhere their presence is marked by the pottery and stone hoes which characterize them in Moravia.

Only in their struggles with forest and mountain they lost some elements of civilization : they gave up making figurines or decorating their pots with animals' heads. But even on the Rhine and in Thuringia they wore the *Spondylus* shell ornaments of Mediterranean origin ; such were regularly deposited in the graves.

Such was the method by which the "neolithic culture" reached Belgium. The Danubians brought it thither at a time when the

¹ Cf. Duerst, in Pumpelly, *Explorations in Turkestan* (Carnegie Publications, 73) vol. II.

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natives (Rutot's "Spiennians") had no domestic animals nor cultivated plants and made implements by chipping, and not by polishing.¹

The process of expansion just described was naturally gradual; it must have taken several centuries. All that time we may assume that intercourse was maintained at least between the middle Danube and the Aegean. About the period of Vinča II, the evidence of contact with the Aegean becomes particularly clear; it is attested by the introduction of new ritual types—"a goddess" nursing an infant as in central Greece and Thessaly; clothed statuettes wearing aprons of linen; sitting types.² Probably to this level belong miniature tables supporting bowls found at Vinča and elsewhere to which Thessaly offers analogies.³ From Csoka and Tordos, moreover, come several vases standing on human legs, exact parallels to which are known from the Yortan cemetery in Mysia.⁴ Finally from Vinča II comes pottery ornamented with daubs of red colouring matter applied after the burnishing and firing of the vase. This very same crusted ware is found in eastern Thessaly in the third period about 2200 B.C. Possibly this last innovation did not come from the south but was transmitted to Thessaly from the Danube basin; for there is reason to believe that the technique was developed on the western borders of Transylvania. In any case it enables us to say approximately what period in world history we have reached. We are now in the latter half of the 3rd millennium B.C.

By that date Troy II had grown to a rich and powerful city through her control of the sea way to the Euxine and land ways to Asia Minor and Cyprus. We should expect to find positive evidence of her participation in the trade along the Danube from which a part of her wealth was derived. The evidence is not far to seek. In a series of graves and settlements along the Tisza and the Danube, and right away to Silesia and Thuringia⁵ we encounter imitations of Trojan imports, together with actual objects of indisputably southern provenance. We have firstly clay copies of metal cups with high handles and two-handled tankards. From the graves come numerous copper trinkets, some of which reproduce forms popular at Troy in more precious metals, such as the wire spectacle spiral. That these products came

¹ *Bul. Soc. Anthr. Bruxelles*, xxxix, p. 63 n. 2.

² M.M. Vassits in *P.Z.* ii, and *BSA*, xiv.

³ Wace and Thompson, *op. cit.* p. 111.

⁴ In the British Museum.

⁵ Childe, *Daton*, pp. 177-9.

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up the Danube seems proved by the presence of ivory in a deposit of this period at Babska in Slavonia and the discovery of Mediterranean shells at Weikersdorf, Lower Austria,¹ while at Lengyel² in Hungary even shells of *Tridacna*, a denizen of the Indian Ocean, were buried in graves at this period. We are not obliged to assume that the folk in whose settlements or graves such objects have been unearthed themselves represent a fresh wave of colonization from the Aegean. The Troadic types appear still as strangers among native or perhaps eastern wares. The typical funerary vessel was a bowl on a high hollow foot which is often perforated with wide circular windows. Only one such bowl has been found at Troy and it is said to have come from the older village that preceded Troy II. Nevertheless we may infer that merchants and explorers from Troy were now about.

Naturally Trojan enterprise was directed first to the gold fields of Transylvania. It led in the end to the establishment of colonies on the approaches thereto. Near Arad, on the lower Maros and the Aranka, the villages Perjámos and Nagy Sances arose which might pass for Trojan settlements. In any case the typical vase found there was a two-handled hour glass tankard of a form common in Troy II. Perjámos further yielded a torque of copper wire, the ends of which have been flattened and bent back (like fig. a, p. 88). The same sort of torque was well known in north Syria, whence an isolated specimen found its way to Egypt. The last-named example and a group recently discovered at Byblos seem to belong to the age of the XIIIth Dynasty (xviiith cent. B.C.) in Egypt.³

Further documents illustrating the intensity of south-eastern commerce along the Tisza and Maros come from the graves found at Ó Beba⁴ not far from the junction of the rivers. These contained *inter alia* Mediterranean shells (*Pectunculus* and *Cardium*), a "knot-headed pin" (fig. b, p. 88), *i.e.* a pin of copper (? bronze) wire the head of which has been bent over and twisted round the shaft to form a loop, gold pendants the ends of which have been hammered out flat, and a gold disc ornamented with geometric patterns composed of series of nobs. The knot-headed pin occurs in Cyprus and at Troy; the gold pendants illustrate a type very common in Transylvania which is well

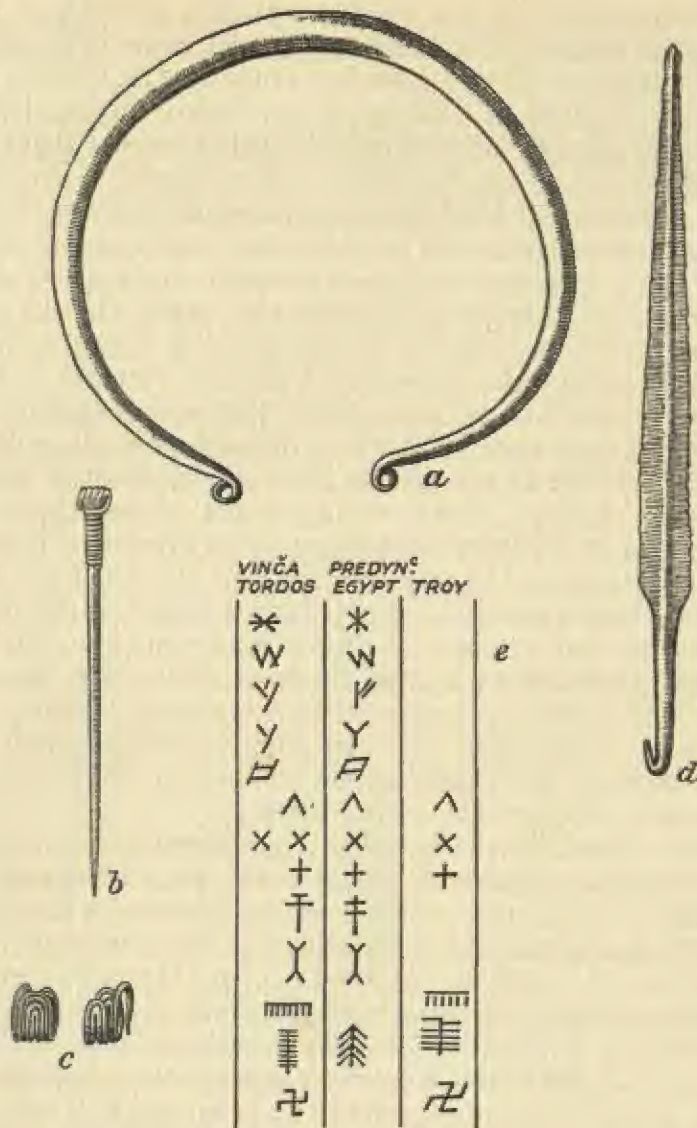
¹ *W.P.Z.*, x, 1-10.

² Wosinsky, *Das prähistorische Schanzwerk von Lengyel*.

³ Carchemish: *Liv. Annals*, vi, pp. 91 ff; Byblos: *Syria*, vi, pp. 16; Egypt Petrie, *Illahun, Kahun and Gurob*, pl. xiii.

⁴ *Arch. Ert.* xxiv, pp. 85 f; *Archiv f. Anthrop.*, xv, p. 253, pl. 1.

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- a. "Ingot Torque," Gáta. $\frac{1}{4}$.
- b. Knot-headed Pin, Bohemia. $\frac{1}{4}$.
- c. Troadic Earrings, Bohemia. $\frac{3}{8}$.
- d. Cypriote Dagger, Csorvas. $\frac{1}{4}$.
- e. "Proprietary Marks" on Vases and Whorls.

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represented in the hoards of jewelry from Troy. The form originated in Mesopotamia where it has recently been discovered in graves of the IVth millennium at Kish.¹ The technique of punctured ornament illustrated on the gold disc from Ó Beba has early parallels in the gold work of Crete and Troy. The juxtaposition here of indubitable southern imports and objects fashioned presumably of native gold, is very significant, especially as the local manufactures are so obviously inspired by exotic models. Still more conclusive evidence for the activity of southern traders is provided by the occurrence (unfortunately isolated) of two Cypriote daggers at Csorvas in the vicinity of Arad (fig. d, p. 88). Such daggers, though native to Cyprus, were also used occasionally at Troy and in the hinterland.

A counterpart to these foreign objects lining the path to the Transylvanian gold-fields is doubtless revealed in the vast hoards of gold ornaments and vessels that lay buried in the ruins of Troy II from the day of its sack till Dr Schliemann laid them bare. But the Trojan hoards also included bronze implements and weapons containing 10 per cent. of tin. These are probably the earliest dated specimens of rich bronze.

The origin of the tin which came gradually into use for alloying with copper in the eastern Mediterranean has long been a puzzle to historians. The evidence adduced above of extensive traffic from the Aegean and especially from Troy up the Danube at this very epoch suggests that one source might well have been Bohemia; for the Danube highway did lead into that country.

Now we have already noted that copper trinkets of Troadic form have turned up in early graves as far away as Silesia. And there is further evidence. A group of three mugs disinterred in the environs of Prague might have come from Troy itself they have such a Trojan "feel."²

Moreover the earliest bronze object found in Bohemia is a knot-head pin just like those from Ó Beba, Troy II and Cyprus.

Conversely among the stone battle axes found at Troy is at least one that reproduces a type very common in Moravia and Silesia at the epoch in question. Finally when, at a rather later date, a native bronze-using civilization arose on the upper Elbe, many of the types employed carried on Troadic traditions.

¹ "Excavations of the 'A' Cemetery at Kish" *Field Museum Anthropol. Memoirs* 1.

² Stocký, *Praha Pravěká*, 1925, p. 21.

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A possible milestone on the path of this assumed trade is provided by some graves found in north-west Hungary close to the present Austrian frontier. The sites in question, Gáta and Jessehof Puszta, lie almost opposite the natural ports for the Slovakian copper and gold producing areas and beside the route which might connect these with the tin country of Bohemia. The graves belong for the most rather to the period of the local bronze age of Bohemia, but the pottery, notably hour glass mugs like those from Perjámos, is peculiarly reminiscent of Troy II. Among the bronzes were torques of the type already described from Perjámos, and basket shaped earrings derived from a Trojan form (fig. c, p. 88).

But about 1800 B.C. the great second city of Troy was stormed by barbarian hordes and razed to the ground. The chief mart for Danubian products was gone! About the same time a new route between Central Europe and the Mediterranean was opened up across the Brenner Pass, which was now traversable as a result of climatic changes. As a consequence of these events trade along the middle Danube languished. A vigorous local bronze-using civilization, known as the Aunjetitz culture, arose indeed in Bohemia and Saxo-Thuringia, but in this development Hungary had no share. Only the northwest corner was affected by the new industry. The reason for this eastward extension is clear; it was Slovakian copper that was mixed with Bohemian tin to make the Aunjetitz bronzes. Now, the raw copper was transported in the form of the torques with flattened ends alluded to above. A thousand were found together in one hoard in northwest Hungary¹ (and so on the above-mentioned line between Slovakian copper and Bohemian tin); smaller hoards of these torques, unassociated with other objects, are not uncommon; when analysed they are usually found to consist of pure copper. The use of a north Syrian type of torque for ingots by the exploiters of Slovakian copper lodes is very significant. Its significance would be enhanced if, as seems probable from the number of such torques in the Byblos hoard, they were also used as ingots in Asia Minor. The inference is that the exploitation of the copper mines from which the Bohemian bronze industry was supplied, had been initiated by metallurgists come from Asia Minor. These considerations lend force to the numerous survivals of Troadic traditions in the earliest Bronze Age of Bohemia—survivals which have been enumerated elsewhere.²

¹ *Zs. f. Ethnol.*, 1896, p. 80.

² Childe, *Dawn*, p. 192.

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The discovery and original exploitation of the Bohemian tin deposits, and hence the inauguration of a bronze industry in central Europe was due to explorers coming up the Danube from the southeast.

Now the first dated bronze objects found in a definite context in Britain come from the graves of the so-called Beaker Folk, who reached these islands from Central Europe.

It therefore seems likely that we owe our first metallurgy in the long run to those explorers from Troy whose tracks we have been following up the Danube. So not only was that river one of the routes by which a so-called "neolithic" culture reached northwestern Europe, it was also a channel in the diffusion of the arts of metallurgy northward and westward from the Ancient East.

Prehistoric Timber Circles

by MRS M. E. CUNNINGTON

THE photographs here reproduced, were taken from the air on 30 June 1926, by Squadron-Leader Insall, V.C., M.C., who was then stationed at Netheravon. The large circular earthwork which appears with a series of concentric dots within its area had always been regarded as a "ring" or "disc" barrow much wasted and defaced as a result of many years cultivation. The ring barrow is a type of pre-historic burial place which occurs comparatively frequently on the Downs of Wiltshire and adjacent counties but is rare elsewhere. It consists of a circular earthen bank with a corresponding ditch, usually on the inner side. The actual burials, apparently invariably after cremation, are usually found in one or more mounds near the centre of the circular area thus enclosed. The banks and ditches are continuous and form unbroken rings; they vary in size from a few yards in diameter up to nearly 200 ft. The smaller dark rings shown on the lower part of the photographs near the Amesbury road probably represent the filled-in ditches of barrows that have been destroyed by cultivation.

The earthwork under discussion, in its wasted state, seemed outwardly to have all the characteristics of a very large but otherwise normal ring barrow, *i.e.*, a ditch within a circular bank, and a raised area in the centre. The earthwork lies in a large open arable field, and at the time the photograph was taken the whole area, earthwork and all alike, was covered with a flourishing crop of wheat, already in ear and nearly its full height. The arable field is bounded on the east (right side on the photograph) by the high road from Netheravon and Upavon to Amesbury, it being distant about one and a half miles from the latter village; on the north (upper side of photograph), it is bounded by the new Fargo road to Larkhill camp; the rectangular light patch adjoining the earthwork is an uncultivated plot used as a stand for ricks; the light lines running over the earthwork and all across the arable ground are deep plough furrows. To grasp the full significance of the photograph it must be borne in mind that when it was taken the

PLATE I



"WOODHEDGE": ORBQUE VIEW FROM THE SOUTH TAKEN BY SQUADRON-LEADER INSALL, V.C., M.C.
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PREHISTORIC TIMBER CIRCLES

whole area was covered by a tall crop of wheat so that what is seen must be irregularity in colour and growth of the wheat, the actual surface of the ground being hidden. The soil here is only a few inches thick over the chalk, and the long fibrous roots of the wheat penetrate into it with difficulty, if at all. On the other hand, wherever a hole has been previously dug into the chalk the disturbed chalk disintegrates and becomes comparatively soft, and is moreover generally mixed with soil and decayed organic matter, so that the long rootlets penetrate it with ease, and finding congenial conditions the corn grows finer than on the surrounding undisturbed chalk. This is really the secret of many archæological discoveries from the air. Old ditches, pits, and so on, completely filled in and obliterated on the surface, reveal themselves in the growth of crops, creating conditions easily seen with the naked eye but requiring a bird's eye view to follow up.

It was, therefore, realised at once that the dark spots within the earthwork appearing on the photograph in all probability represented pits of some kind, just as the dark ring enclosing them represents actually only the taller and deeper coloured growth of corn over the filled and obliterated ditch, the ditch and bank being themselves quite hidden.

The plan of the circles of holes thus revealed is more or less suggestive of that of Stonehenge, and at once excited great interest among archæologists to whom the photograph was shown by Squadron-Leader Insall.

Arrangements were made to test the site by excavation and this was done in August 1926; the work was carried on for five weeks when the southern half of the circle was examined, with most interesting results. Presuming that the unexcavated half of the circle agrees with that already done, as the photograph gives every reason to believe, there are six roughly concentric rings of holes surrounded by a ditch immense in proportion to the area enclosed. To test the ditch three sections were cut through it, one each on the east, south, and west sides; in each section it showed the same general features and was found to be unexpectedly large, measuring some 25 ft. across the top, from 10 ft. to 14 ft. wide at the bottom, and some 7 ft. deep. On the photograph there appears to be a break in the continuity of the ditch on the N.E. side towards the Fargo road (on the upper part of the plate); this no doubt represents the entrance to the circle but it has not as yet been proved. The diameter of the earthwork, measured from bank to bank, is approximately 250 ft. On the outer side of the

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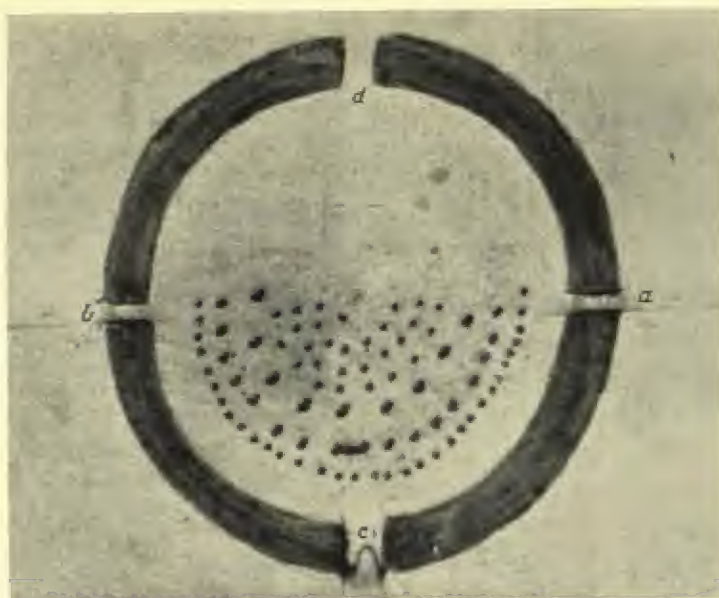
ditch there are still slight remains of the bank which must once have been proportionate in size to that of the ditch. It must, of course, be understood that the ditch and all the holes were completely filled up and invisible on the surface.

Clear evidence was obtained in excavation that the six concentric rings of holes once held posts or tree trunks varying from 1 ft. to 3 ft. in diameter according to the size of the hole. Plate II, fig. 2 is from a photograph of a model made to scale of the series of holes as excavated; *a, b, c*, represent trial sections cut through the ditch; the position of the entrance at *d* is approximate only. The holes of the second and third circles appear oblong on plan on account of their ramps, and this brings out how irregularly spaced the holes are. The site was indeed that of an elaborately designed timber construction, possibly comparable in some respects to the more familiar stone circles.

The size and depth and distance between the holes varies in each circle, but in each circle is fairly consistent throughout. In the outermost circle the holes are 6 ft. apart from centre to centre, from $1\frac{1}{2}$ ft. to 2 ft. deep and from 2 ft to 3 ft. in diameter. In the second circle the holes were larger and further apart, averaging about 4 ft. in depth, and from $3\frac{1}{2}$ ft. to 4 ft. in diameter. The largest of all were those of the third circle, being about 6 ft. deep, with a diameter at top of from 4 ft. to 5 ft.; the holes of the three inner circles were all much alike, about $3\frac{1}{2}$ ft. to 3 ft. in depth and 2 ft. to 3 ft. in diameter. It is computed that the outer circle probably consists of 64 holes; the second 32; the third, 16; the fourth, 20; the fifth, 20; and the sixth, 14 holes. In addition to the six circles of post holes there is an inner seventh series of holes of quite different character; they are shallow and very irregularly cut; whether they really form a seventh circle, and what purpose they served, are both alike at present uncertain.

Two burials were found during the excavations, one, a crouched skeleton of a child, near the centre, and the other a crouched skeleton of an adult in a grave dug below the floor of the ditch in the eastern section.

As a result of excavation it was found that the raised centre of the circle was not due to the remains of a mound but to the fact that the ground had been pared off all round from the centre, towards the edge of the ditch, so that the centre is the natural level of the ground, and only appears raised as a result of the artificial lowering of the surrounding area.



1.—"WOODHENGE": MODEL SHOWING AREA EXCAVATED DURING 1926. THE LETTERS *a-d* INDICATE TRENCHES CUT



2.—"WOODHENGE": VERTICAL VIEW TAKEN 30 JUNE, 1926, FROM A HEIGHT OF 4000 FEET, BY SQUADRON-LEADER INSALL, V.C., M.C.

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PREHISTORIC TIMBER CIRCLES

The monument is, so far as at present known, unique either in the British Isles or abroad, but probably there are others as yet undiscovered waiting to be revealed by photography from the air or by other means. As it stands at present it is the most sensational archaeological discovery made by means of photography from the air, because unlike that of the continuation of the avenue at Stonehenge, it was quite unsuspected and reveals a new type of monument.

As to the purpose for which it was designed, or the date of its construction, it would be premature to speak now, only about one half of the circles having been examined. The objects found have been few, and pottery, which usually affords the most valuable clue for dating purposes, was present only in small fragments.

It is hoped to continue the excavation of the site in the summer of 1927.

Notes and News

THE TALAYOTS OF MAJORCA

The pre-historic inhabitants of the Balearic Islands built small stone forts or towers, called 'talayots.' These are either rectangular or round, and occur either singly or in groups. The stones of which they are constructed are sometimes very large—two of these in a tower at La Canova, near Artà, are twelve feet long and three feet wide ; and the walls are fourteen feet thick. The surface around it is thickly strewn with potsherds, including fragments of red glazed ware,—like the Samian pottery found on Romano-British sites,—and fragments of amphorae, proving that it was occupied during the early part of the Christian era. On the other hand, bronze objects of the Bronze Age have also been found in talayot settlements, and some of these objects can hardly be later than 1000 B.C. This implies a long period, during which one might expect to find evidence of development in the methods of construction of the talayots. It seems possible that the earliest forms of settlement may have been normal hill-forts with stone walls, such as occur on the tops of several of the hills of the island ; and that the talayot settlements with their towers may be a later type of fortified village adapted to the lower ground. Several of the smaller hills around Artà are crowned by small round forts, consisting simply of a wall of big stones roughly squared, set round the top of the hill. This seems to represent a primitive type such as one might suppose to be earlier than the more elaborate villages. Some of the forts contain citadels in the centre, the best example being that of Encinar des Payeses. The main entrance is four feet wide and covered by a single lintel-stone, six feet long and two and a half feet thick ; it rests on two uprights, one of which is seven and a half feet high, and has been dressed to receive the lintel. There is a similar, but smaller 'trilithon' entrance in the opposite side, now blocked up. In the centre is a citadel with a sloping ramp. There are remains of walls everywhere inside. There is much pottery lying about, some of it plainly of Roman date—Roman coins have been found here—but some of it probably earlier.

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The main entrance is familiar to all archaeologists, it is illustrated in Cartailhac's *Monuments primitifs des Iles baléares*, and in many text-books. It is regrettable that the whole fort should be threatened with destruction, for building purposes; and it is to be hoped that the endeavours to preserve it will succeed. To many, this fort and its gateway are typical of Balearic archaeology. It may be suggested that the free-standing towers represent the central citadel of forts such as Encinar, adapted to the needs of a settlement on lower ground.

IRISH MEGALITHS

A recent visit to New Grange, the most celebrated of Irish megalithic tombs, convinced one that it must have been constructed in the Bronze Age. There is presumptive evidence in support of this view, but one piece of direct evidence has hitherto been overlooked. The central burial-chamber is approached by a long passage, narrowest near the middle. This passage is flanked with upright stones, several of which are ornamented with sculptured designs. (See Coffey, *New Grange*, Dublin, 1912). Now the surface of one such (on the right hand as you go in, at the narrowest part) has been made smooth by chiselling *before* the ornament was applied; and the marks of the instrument used can still be seen very plainly. It was a chisel with an edge very slightly serrated or chipped, doubtless by use. The upright stone is of a soapy texture. I do not think that anything but a metal chisel could have done this. It would be interesting to know whether, in the Dublin Museum, there are any bronze chisels whose working edge agrees in width with these marks; and if so to what period of the Bronze Age the type belongs. It is difficult also to see how the elaborate and sometimes deep incisions on the stones of New Grange and kindred Irish monuments can have been made except with metal tools. Some of this ornament can be proved to have been sculptured before the stones were placed in their present position.

About 640 yards to the south-east of New Grange is a large round barrow standing in the centre of a circular earthen rampart. The diameter of this circle is 154 yards. Comparisons are suggested with the disc-barrows of Southern England and with the Giant's Ring in Antrim. The present example differs, however, from disc-barrows both in the size of the central mound, and in the absence of any visible ditch associated with the bank. The Giant's Ring has a stone burial-chamber at the centre. One of the four earthen rings near the Castle

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of Comfort, on Mendip, has three large flat mounds within it, but not placed in the centre. About two miles to the east of New Grange is another circular earthen enclosure, much higher and less symmetrical in outline. The longest diameter is about 165 yards. There is no sign of a ditch or central mound; but in both instances ploughing may well have obliterated such, if they existed.

Almost a mile to the north-east of New Grange is a long earthen mound, oriented east-north-east and west-south-west; it has the appearance of being a long barrow. In one place on the north side the mound has been dug into and an upright slab exposed. At the east end is a round barrow or cairn, with the remains of a small circle of stones revealed by digging. There is another round barrow not far from the west end. These smaller cairn-circles occur close to the larger chambered cairns on the ridge of Slieve-na-Calliagh (Lough Crewe). The stones forming the chambers and passages of these smaller cairn-circles are covered with decoration, like those of the large ones; and they belong presumably to the same period, the early or middle Bronze Age. In plan these Irish cairn-circles closely resemble those of the Scilly Isles and west Cornwall.

The photographs from which the annexed illustrations (see plate) have been made were taken by Mrs Keiller last April, and thanks are due to her for permission to reproduce them here. The upper one shows the detail of the spiral ornament on a stone at New Grange—one of the curb-stones of the mound—situated immediately opposite the entrance. The lower one is an admirable view of one of the smaller cairn-circles on Slieve-na-Calliagh, taken from the top of one of the biggest cairns of the New Grange type.

The Irish sculptured ornament of the Bronze Age has recently been studied by Professors Breuil and Macalister and Mr Miles Burkitt. The results are published in the *Proceedings of the Royal Irish Academy*, vol. xxxvi (1921); and by Mr Burkitt in *Ipek: Jahrbuch für prähistorische und Ethnographische Kunst*, 1926 (Klinkhardt und Biermann, Leipzig).

MONGOLIA

The American expedition which has found dinosaurs' eggs in the Gobi desert has also found abundant traces of human occupation, in the form of worked flints and ornaments of egg-shell. Full details naturally are not yet available, and criticism may be premature. But



1.—SCULPTURED STONE AT ENTRANCE OF PASSAGE, NEW GRANGE
PA. Veronica Keiller



2.—CAIRN-CIRCLE SLIEVE-NA-CALLIAGH (LOUGH CREWE)
PA. Veronica Keiller

NOTES AND NEWS

when it is suggested, by Dr Fairfield Osborn in *Nature* (7 August 1926), that the European cultures of St. Acheul, Aurignac, Le Moustier, Mas d'Azile and Campigny are all represented, one cannot help wondering upon what these conclusions are based? It is a far cry from France to Mongolia; and the latter country has yet to provide a site where stratified deposits may be investigated. Even then synchronism will be difficult to establish. The expedition is led by Dr Roy Chapman Andrews. The area is one that from an anthropological point of view is most promising. Dr Andrews has published an interesting and readable account of the work of the expedition up to 1926 (*On the Trail of Ancient Man*, Putnam's Sons, 25s.), and one is full of admiration for the ability and enthusiasm of the whole party. The bulk of the work so far has naturally been palaeontological, and has been crowned by the fullest success. There are some reasons for sharing the writer's expectation that similar good results will follow when the trail of ancient man is followed more closely; but the absence of caves is unfortunate, and one would expect, on *a priori* grounds, that really ancient human fossils will be difficult to locate. Dr Andrews' address to the Royal Geographical Society of London was published in the *Geographical Journal*, January 1927.

WOODHENGES

Mrs Cunningham's account of the excavation of the newly-discovered site near Durrington Walls appears on page 92 of this number of *ANTIQUITY*. The story of its discovery—or rather, of the discovery of what it really was—is worth recording, and we therefore quote the following account from a letter just received from Squadron Leader Insall, v.c., who is now stationed at Basrah:—"I was flying a Sopwith Snipe on 12 December 1925, at about 2000 feet, over Stonehenge, when I noticed a circle with white chalk marks in the centre near Durrington Walls. Stonehenge was visible at the same time, and the two sites looked similar from that height. I photographed it shortly afterwards; result—white chalk marks in the plough. Returning late one evening as the sun was setting I noticed there was a distinct depression inside the outer circle, and a gradually rising mound in the centre, both of which were revealed by the shadows. Having been told that it was only a 'mutilated disc-barrow,' and having looked it up in the *Wiltshire Archaeological Magazine*, I watched it to see what the crops might reveal. The only mutilation visible was caused by the

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plough. In July, when the wheat was well up over the site, there was no further doubt. Five or six or perhaps even seven closely-set rings of spots appeared, and were photographed [see frontispiece]. I climbed on to a hayrick in the same field a few days later, and although a few dark patches could be seen in the standing wheat, no pattern was visible, and they would have passed unnoticed. From the air the details of the site were as clear as shown on the photograph, if not clearer."

Since Mrs Cunningham's article was set in type, an account of a not very dissimilar monument has been printed. It is situated at Har-endermolen, south-east of Gröningen and in that province, in Holland. The earliest interment belonged to the beaker period, and was surrounded by a broken ditch and two concentric circles of holes which had held wooden uprights. A full account will be found in the *Præ-historische Zeitschrift* (Berlin) vol. xv. (1924), pp. 52-61, by Dr A. E. van Giffen, of Gröningen. The significance of these facts will be apparent, but we refrain from comment until the excavation of the site is completed.

" L'AFFAIRE GLOZEL "

For some years past a number of strange objects have been found at Glozel in France, not far from Vichy. They attracted little attention over here until M. Salomon Reinach referred to them in a letter to *The Times* (27 September 1926). The objects consist of clay tablets with incised characters, stones (some in the form of axes) with engraved representations of animals and with characters like those on the tablets, and the débris of a glass-factory ! At first the whole of this heterogeneous collection was assigned to the neolithic period by its discoverer, Dr Morlet. Later, however, the glass-factory was allowed to fade into the background. M. Reinach expressed the opinion that the style of the animal-engravings was " degenerate Magdalenian ; " and on the strength of this, proposed to assign an age of five to six thousand years to the Magdalenian period. In other words he suggested that the Cave period might have continued to 3000 or 4000 B.C. ! Such a suggestion, coming from any lesser authority, would be laughed out of court ; but M. Reinach's reputation, and his official position as Director of the S. Germain Museum, compel respect, even if assent be withheld. Accordingly the Editor determined to investigate matters for himself. He went to Vichy, and saw the site of the discoveries and the objects ; some of them are in Fradin's farm at Glozel, and some in Dr Morlet's

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collection at Vichy. From both he received a most courteous welcome, which he wishes once again to acknowledge. He wrote an objective description of his experiences in the *Observer* (31 October 1926), in the hope that readers would draw their own conclusions. Perhaps it would have been better frankly to have expressed his scepticism at once; but he did not wish to be drawn into a controversy which might waste much valuable time and energy, and which would certainly be acrimonious and unprofitable.

This scepticism was not removed by a report of the proceedings at the Académie des Inscriptions et Belles-lettres (*Temps*, 14 November), and by a letter from Professor Loth (*id.* 20 November). At that meeting M. Camille Jullian read a paper, explaining the discovery as a witch-doctor's outfit, and dating it to 250-300 A.D. M. Jullian was even able to translate some of the phrases! In the discussion M. Reinach defended his opinion, entirely disagreeing with M. Jullian's interpretation. He was supported, with qualifications, by Professor Loth, who regards the discovery as "perhaps the most important in the domain of archaeology which has been made in France for a century." Finally, in the current number of the *Antiquaries Journal*, M. Reinach summarized the discoveries, repeated his opinion that "all the finds . . . were undoubtedly genuine and neolithic" and that "any expression of scepticism is now out of date, and need not even be discussed." The glass-factory was referred to, but left unexplained.

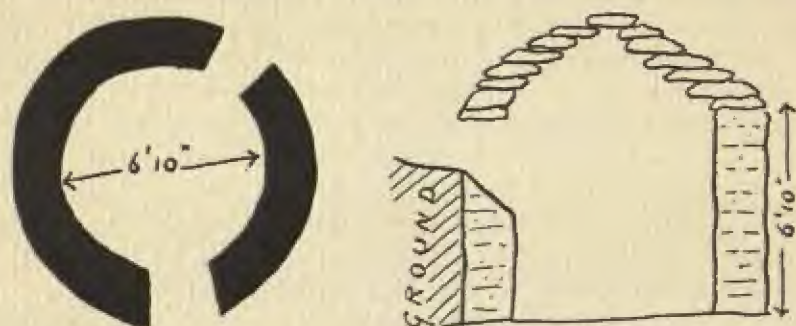
In view of M. Reinach's last-quoted remark, it will be interesting to see what happens now that Abbé Breuil's report is published in *L'Anthropologie*, xxvi, 543-58. The Editor had the privilege of discussing Glozel with M. Breuil at Paris, on his way back from Vichy, when the Abbé was good enough to read this report to him. There is no greater authority in the world on palaeolithic art; and his analysis of the engravings, as well as of the harpoons and other small objects, seems to an impartial observer to be conclusive.

It is always a thankless and unpleasant task to bring an accusation of forgery; but when such far-reaching conclusions are involved it becomes a duty. We went to Glozel hoping for the best, but prepared for the worst. We saw the site, the method of excavation and the objects found; and we were not favourably impressed. We do not say that none of the objects found are genuine; but when a site has been 'salted,' it ceases to interest, though not to amuse, the serious student. Our views will be published in the next number of **ANTIQUITY**.

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CORBELLING

Corbelled arches, vaults and domes are of interest to prehistorians because (to give only one instance) they occur in the primitive prehistoric structures of Western Europe. The corbelled vault, in a rudimentary form, occurs in the Long Barrows of Gloucestershire and in those of Sardinia. It occurs also in tombs of the second millennium at Ur in Mesopotamia (see *Ant. Jour.*, vi, plate 60). The corbelled dome is also found in the Gloucestershire Long Barrows—one over a burial-chamber at Belas Knap was to be seen until quite recently—and in the megalithic burial-chambers of Western Europe generally. A humbler example is to be seen on Dartmoor, near Postbridge. Here is a perfect specimen of a bee-hive hut with corbelled roof. But apparently the practice of building in this fashion was carried on



in historic times. Dr Eric Gardner, F.S.A., reports the existence of one at Nattadon Farm, Chagford. "It is very old, and is called a winnowing hut, now used as a chicken-house. There is only one other on the moor, but its roof has been mended, and externally at any rate consists of concrete. Ours is perfect; the roof is of beehive construction, just like the one at Postbridge. It is made of blocks of granite and a poor sort of mortar which is hardly more than tenacious mud. There is a narrow doorway, and a window at the back facing south-west, and when the wind blows you can hardly stand in it. In old days the corn was sprinkled on the floor of the hut during a gale, and in falling was winnowed. The hut is built against a slope, so that the door opens on to a patch of green by the roadside; but the bank behind is cut away, so that the field there is level with the window; this creates more draught. It is evidently a survival of a very old method of winnowing, and seems to be the only

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one left about here, except the one near by which has had a new roof put on—at least it is new outside.”

In Majorca similar huts are built to-day by the peasants. Near the bay of San Vicente a tabular limestone is worked and the construction of a hut is no difficult matter. The slabs of stone lend themselves easily to corbelling and this method is adopted for making the roof. Longer slabs form lintels above doors and windows.

RHODESIA

It is satisfactory to hear that the Rhodesian Public Works Department is showing an interest in the great ruins of which Zimbabwe is the most famous. Mr J. F. Schofield, a professional architect, has examined and reported on the two series of buildings known as the ‘Elliptical Temple’ and the ‘Acropolis.’ This account, which is carefully and critically written, is published in a series of articles in the *Rhodesia Herald*, beginning 22 January 1926. Being a trained and impartial man Mr Schofield arrives at the only possible conclusions as to date and origin, which are the same that I propounded twenty years ago. That is to say, the ruins are not earlier than the late Middle Ages and are to be ascribed to Bantu peoples. Fresh evidence, all tending the same way, has lately been adduced by Mr Douslin and the Rev. S. S. Dornan.

Mr Schofield’s articles should be read by all who do not feel that the main issues have been finally settled, as well as those who have accepted the general scientific verdict but are interested in the details. It may be hoped that his records mark the opening of a new period in the study of southern Rhodesian antiquities. These are most important and valuable for the history of civilization; and South Africans ought to regard them as part of the history of their country, in the same way that the Americans have for many years devoted themselves to the study of the Indians before and after Columbus.

In the *Journal of the African Society* Captain E. A. Norton writes a too brief article on ruins in the neighbourhood of Inyanga. These seem to be part of the same system, and perhaps part of the same site which I attempted to describe in my account of the ‘Niekerk Ruins’—the second and third chapters of my book *Mediaeval Rhodesia*, which Captain Norton appears not to have read. There are endless terraces (built no doubt mainly for cultivation and not for defence as I had at first thought), and quite elaborate dwellings; also some forts and a well defined road. These ruins lie in a remote and little-visited area, but

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they have not wholly escaped attention. They are worthy of careful study and the official archaeologists should turn their energies upon them. That they are the work of a Bantu race is quite certain but their antiquity is perhaps a little greater than the 'experts' gave Captain Norton to believe; I think they are probably a century or two earlier than Zimbabwe.

Mr R. S. Fairbridge, of Umtali, who has an unequalled knowledge of his own district, has written some articles to prove that the 'slave-pits' were used as tombs, or rather as cenotaphs. The theory is ingenious and deserves examination, but I prefer to regard these curious structures as habitations. Though simpler they are of the same generic class as the dwellings on the Niekerk site. RANDALL MACIVER.

WINDMILL HILL, WILTSHIRE

The greatest interest has been aroused in archaeological circles by the remarkable discoveries on Windmill Hill, near Avebury. Here the owners, Mr and Mrs Keiller, have been carrying out excavations for two seasons, with the assistance of Mr St. George Gray. The site was inhabited at a very early date in the prehistoric period; and the triple concentric ditches there, broken as they are by frequent causeways, have analogies in the Middle Rhine region. Mr Keiller allows the following forecast of his plans to be published. In 1927 digging will be carried out between 26 April and 28 May. Visitors will be allowed to visit the excavations on Saturday afternoons. The following year will be devoted to tabulating the results of the past three years' work, and to writing the first volume of the published account of the excavations. It is proposed to continue this method of publication every three or four years, and full arrangements have been made for the work to be carried on in the event of the death of any of the principals or any of the permanent staff. It is proposed thoroughly to excavate the entire site and any adjacent ground which might tend to throw light upon that site; but a certain portion of each distinctive part of the site will be left unexcavated and provision will be made for leaving these portions unexcavated for at least one century. Mr Keiller continues:—"This unusual arrangement is prompted by my realization of the inestimable advantage that it would have been to us of these days, had earlier excavators pursued this policy; since it is merely futile to assume that future generations will not have further comparative data upon which to work, which will enable them doubtless to obtain more information from the excavation of a site than lies

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within our power to-day. It will, moreover, give a future generation of archaeologists an opportunity of satisfying themselves that the reports of our work were reliable and accurate."

With regard to the excavations themselves Mr Keiller says :—
" The first year's work (1925) consisted of certain trial excavations of typical portions representing different features, *e.g.*, Inner, Middle and Outer Ditch, and certain of the holes within the area. Last year we began upon the more definite line which would in future be followed, namely, excavating from causeway to causeway in any section which was undertaken. The next year's work (1927) will be the continuation of the first year's work upon the lines of the second year's work, that is to say, those sections in which diggings were made the first year will be completely excavated this year from causeway to causeway in each case, and the causeways themselves will be exposed."

Archaeologists will follow the work on this most important site with the greatest interest.

FLINTS AND "FOOD-GATHERERS"

Considerable success has attended the second year's excavations at Lower Halstow, near the mouth of the Medway, in Kent, of a series of Stone Age hearths ; and it is now possible to group the finds as follows :—

- (1) Types resembling forms of the Upper Palaeolithic period, including the graver.
- (2) Microliths and quasi-microliths.
- (3) Picks, pick-planes, axes, adzes and tranchets.

The adze is by far the most numerously represented.

A parallel industry may be cited as occurring on the west coast of Norway between Bergen and Trondhjem. The artifacts there recovered fall under the same grouping as set out above. The graver which occurs plentifully is not represented in the Shell Mounds of Denmark. Typologically, the Norwegian coastal industry is anterior to that of the Kitchen Midden period of Denmark ; and geological evidence establishes the fact that these Norwegian sites were flourishing contemporaneously with the Magdalenian phase of Central Europe.

If the typological classification of the Upper Palaeolithic and Azilian-Tardenoisian cultures of Central Europe is correct, and if the Norwegian geological evidence is sound, then it is abundantly clear that the industries located on the Norwegian coastal sites and at Lower Halstow must be widely separated in point of time. J. P. T. BURCHELL,

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THE HUELVA HOARD (SPAIN)

This hoard, found in 1923 at the mouth of the Rio Tinto in Andalusia, is of capital importance for chronology of the British Bronze Age. It consisted of bronze swords, spearheads, arrowheads, fibulae and miscellaneous objects. Several of the swords belong to a type common in NW. Europe, and represented in England. The hilt is quite distinctive and is noticed at once when it occurs in English hoards, for it differs in many respects from the commoner types. The blade has a pronounced midrib, and narrows gradually to a fine point; it was intended for thrusting rather than cutting. Examples (represented by the hilt only) have been found in England at Beachy Head, Sussex; Cumberlow Green, Herts.; Minster, Kent; and from the Thames at Twickenham. In the British Museum are examples from the Seine at Paris; the Boulogne, near Nantes; the Loire, near Nantes; and there is one also from Almeria, in SE. Spain.

The Huelva blades with a tang and rivets may be matched by English finds from the Thames at Twickenham (*Bronze Age Guide*, plate 2, fig. 7); from the Ouse near Ely (*ib. id.* fig. 11); and from the Langrove hoard (*Archaeologia*, lxxi, plate 12, fig. 3). The type is more common in France.

Amongst the spear heads from Huelva occur some with openings in the blade. This type is well represented here, but also occurs in Northern France.

Lastly, there are arrowheads. The only example of a British Bronze Age arrowhead is that found in the Langrove hoard, where also occurred a square-socketed axe, which was either imported from France or strongly influenced by the well-known French type.

The inference is clear; at the period represented by the Huelva hoard, 'influences' from the south reached as far as England and Wales. One might go further and infer that such 'influences' consisted of sea-borne trade; and one might speak of a Western European region that was loosely united by the bond of trade, perhaps also by some community of culture.

But some of the Huelva bronzes point eastwards. A sword with a bronze pommel is a Balearic type; and, far more important, some fibulae—the first of the kind found in Spain—are of the same type as those found at Casibile in Sicily. These can be dated there to between 1200 and 1000 B.C. Unless therefore the British and French types represented at Huelva had a long life in those countries, during which

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they remained absolutely unchanged—and this seems unlikely—we are enabled to date them in Britain, also the objects associated with them, to the period 1200–1000 B.C. Since in the Cumberlow hoard and at Beachy Head there were found winged axes, the date of these will have to be put much earlier than has previously been supposed. A full consideration of this important problem, however, would be out of place here.

Professor Bosch Gimpera has discussed the bearings of the Huelva hoard very fully in the *Butlleti*, to which readers are referred. It is clear that Andalusia was a region whose trade extended eastwards for an unknown distance, but (for other reasons) almost certainly as far as the Balearic Isles and Sardinia; and northwards as far as France and probably England and Wales. The trade with Britain need not have been direct; indeed the celt from Langrove suggests indirect trade via Brittany. Huelva is only 50 miles from the mouth of the Guadalquivir, in the neighbourhood of which stood Tartessus. This great emporium was founded by the Phoenicians somewhere between 1100 and 1000 B.C.; but one is justified in assuming, as a working hypothesis at any rate, that it was already in existence then, and that it formed an entrepot for the trade of the west. Several centuries later we know (from Avienus) that the merchants of Tartessus were accustomed to trade with the Oestrymnides, which lay somewhere on the north-west coast of the Atlantic; and trade is apt to be conservative. Huelva is an obvious outlet for the copper-mining district of the Sierra Morena; and it would be bound to be used in the Bronze Age. We shall return to this subject later, in dealing with the problem of the glass beads found in British barrows.

Meanwhile further information may be obtained from Professor Bosch Gimpera's article "Huelva," in Ebert's *Reallexikon der Vorgeschichte*, which is illustrated by a full-page half-tone plate; the same writer's review of the original accounts in *Butlleti de L'Associacio Catalana d'Antropologia, Etnologia, Preistoria*, vol. ii, fasc. ii (1924), pp. 223–6; and the original accounts themselves published in the *Boletín de la R. Academia de la Historia*, vol. lxxxiii, 1923, pp. 89–91 (three plates), and in *Actas y Memorias de la Sociedad Española de Antropologia, Etnologia y Prehistoria*, vol. ii, 1923, pp. 37–40 (three figures). A short account by J. Albelda is published in *Revue Archéologique*, vol. xviii, 1923, pp. 222–6 (with rather inadequate line-drawings; this reference is given incorrectly as vol. xvii by Professor Bosch Gimpera).

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Forthcoming Excavations

The following information has kindly been sent by those who have been carrying out excavations this year. The Editor wishes to thank those correspondents who have supplied it, and regrets that some of the replies were received too late for inclusion.

DURRINGTON

Mr and Mrs B. H. Cunnington will resume excavations at this site during the first week in June, and hope it will be possible to finish this year. The account of the first year's excavations is given on pp. 92-5 of this number.

RICHBOROUGH

The excavations undertaken here by the Society of Antiquaries will be continued during August and September. They are directed by Major Bushe Fox, H.M. Inspector of Ancient Monuments for England.

RIBCHESTER

Excavations will be carried out here from about 21 March to 16 April, by Professor Donald Atkinson.

BENWELL

The North of England Excavations Committee hope to continue excavations on the Roman Wall at Benwell in the autumn. Mr J. A. Petch, M.A. will be in charge, as in 1926. Attention will be directed to the suburbs of the fort, since little is known of the details and information relating to Roman Benwell is required for the new county History of Northumberland (vol. XIII), now in process of compilation. Mr Petch will give an account of last season's work at the monthly meeting of the Society of Antiquaries of Newcastle-on-Tyne, to be held on 13 March 1927, in the Black Gate Library, Newcastle.

ALCHESTER

Work will probably be resumed on this site this year, but exact details are not yet forthcoming.

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ST. CATHERINE'S HILL, WINCHESTER

It is probable that excavation on this site will be resumed this summer by some of the Old Wykehamists, in co-operation with the Hampshire Field Club.

CAERLEON

The following programme of work on the site of the Roman legionary fortress, has been planned for the coming season. The excavation of the amphitheatre will be continued by Dr R. E. M. Wheeler, in conjunction with the National Museum of Wales. Funds for the excavation have been supplied by the *Daily Mail*. When completely cleared, the amphitheatre will be handed over to H.M. Office of Works for permanent preservation. Excavations will be begun in a large field of four acres, situated in the *retentura* of the fortress, and including the west corner of the fortress. The work will be spread over two seasons; the present season will be devoted to a systematic clearing of half of the field, and a detailed investigation of the fortress defences, including the stone wall with its internal earthen ramp and external ditch-system. The Caerleon Excavation Committee has invited Mr Nash-Williams, Keeper of Archaeology in the National Museum of Wales, to direct this work.

Excavation in both cases will probably begin in July.

WROXETER

What will probably be the last season's work on this site will be carried out between June and September, under the direction of Professor Donald Atkinson, of Manchester University. It is hoped to finish uncovering the Forum.

WINDMILL HILL, AVEBURY

A note on this season's programme will be found on page 92.

The Editor will welcome information about forthcoming excavations for insertion in the June number of *ANTIQUITY*.

It is hoped that such notes as these may be found useful by excavators themselves, as well as by the general public.

Reviews

THE REGIONAL BALANCE OF RACIAL EVOLUTION being the Presidential Address of Professor H. J. FLEURE, D.Sc., delivered to Section H of the British Association at the Oxford meeting, August 1926.

Presidential addresses are immune from criticism on the occasion of their delivery. How long this immunity lasts we do not know, but let it be said at once that Professor Fleure's address has an innate immunity. It is a brilliant attempt to outline an evolutionary rather than a taxonomic survey of the races of Man ; it abounds with stimulating suggestions ; and it reveals the author as one of those rare men whose power of generalization is not atrophied by specialism. Great generalizers are not uncommon, and all men of science are specialists ; but too often the one is ignorant of his facts while the other can see nothing else. Professor Fleure can see both the wood and the trees at the same time.

The address is written in clear, terse English and a summary is impossible, for it is itself a summary. Perhaps a few quotations may give the best idea of it. For instance, ' Human society does not so much result from the coming together of individuals as human individuality results from the liberation, bit by bit, of individual initiative within groups.'

Professor Fleure refers to the suggestion of Professor Menghin that the Grimaldi type (late palaeolithic) of man ' is to be linked with the rock-face art of Alpera and other places in East and South-east Spain.' An African origin has been suggested for both, and there are very good reasons for accepting this explanation, first put forward many years ago by Professor Sollas (*Ancient Hunters*), for the paintings bear an extraordinary resemblance to the Bushmen paintings of South Africa, while there are negroid characters in the Grimaldi skeletons. Further, rock paintings occur throughout the North of Africa (in the Sahara at Ouenat and in the Sudan at Gebel Moya and Gebel Sagadi, for instance) and some of these may well be of extreme antiquity. ' At that (pleistocene) period, we may take it that the requisite climatic conditions obtained in various parts of the belt now forming the Sahara and South-west Asia, for the belts of climate then lay further south, and the winter westerlies apparently visited that belt ; it is interesting that the Sahara shows a good deal of evidence of inhabitants of possibly mid-pleistocene date. We may, perhaps, venture to place the ancestors of modern man in the zone from the Atlantic edge of the Sahara to Persia.'

With regard to the question of later survivals of the Cro-Magnon type, it may be mentioned here that in the Zagheb (Agram) Museum is a fine series of apparently neolithic skulls with what the present writer thought, when he saw them, to be Cro-Magnon affinities. They have never been published.

REVIEWS

Professor Fleure suggests that 'the probable early home of grain was in some part of the Fertile Crescent around the north end of the Arabian desert, and food production was already undertaken there, e.g. at Susa, about or before 5000 B.C.' Somewhere in the same region is to be placed the rise of a culture complex, which included the invention of metallurgy. Some elements of this culture may have spread to Western Europe during the fourth millennium; but 'there is . . . no need to picture the awakening West as copying exactly from one and distant civilizations. One will be nearer the truth if one thinks of the incoming of a germinating influence.' This is an admirable expression of opinions founded upon fact, not fancy. The key to European prehistory is to be found in local evolution of culture, occasionally modified by influences coming from without.

LEGENDS OF THE FENLAND PEOPLE. By CHRISTOPHER MARLOWE. Cecil Palmer. 7s. 6d.

Archaeologists and historians are no longer sceptical of the value of folk-lore as ancillary to their studies. Genuine folk tradition, analysed with critical care, may contain and reveal valuable kernels of truth, and the garnering of such material in Britain is an urgent need. The book here reviewed can, however, hardly be regarded as providing anything of value in this respect. Practically no details of the sources whence the stories are derived are given save in the case of those numbered 7 and 8—Sir Hugh and the Dragon, and the Story of Bricstan of Chatteris. For the basis of these the author expresses his indebtedness to the author of a book on Horncastle folk-lore. The word "basis" gives us the clue; the stories are literary renderings of folk tales added to or modified as art dictates; and their interest lies therefore mainly in their literary quality. On the merit of the book from this point of view the present reviewer offers no opinion. Those who are curious in such matters may compare chapter v, "Hereward the Saxon," with parallel passages in Kingsley's *Hereward the Wake*. It may be noted that in the foreword the author refers the transformation of a well-populated country into what is now the Fenland to a "sea-quake" which occurred during the consulship of Valentinian. There is no index. CYRIL FOX.

IMMORTAL MAN. By C. E. VULLIAMY. Methuen & Co. 6s.

The subject of this book is the belief in the Immortality of Man. The author traces that belief in the evidence afforded by prehistoric burials, and examines our own attitude towards the problem of survival. He expressly states that he has no wish to present any theory of his own.

The book contains a compendious account of burial customs; the author ranges widely, gathering in archaeological and ethnological evidence, and the material thus collected, if well indexed, would prove useful to archaeologists in search of parallels to the varied and curious phenomena of burial which, if they be barrow diggers, they are certain to have found. The index is however entirely inadequate. Why so many authors of serious works are content to allow this important part of their book to be neglected is a mystery. The answer in the present case, doubtless, is that the book is meant for the general reader. The style of the writing is exact and lucid, the attitude of mind detached and at times ironic. CYRIL FOX.

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ENGLAND IN TUDOR TIMES. By L. E. SALZMAN, M.A., F.S.A. London: B. T. Batsford, Ltd. 1926. 8vo, pp. 143 and 67 plates. 7s. 6d.

This interesting account of the social life and industries of Tudor England will be found very useful by students of that period—the numerous extracts from contemporary writers adding to its value. The five chapters deal with the spirit of the Tudor age, life in the country, life in the town, life in the home, the Church, and adventures on land and sea. The author's style is good and makes easy reading, while the printer has reason to be pleased with his work.

R. C. C. CLAY.

A GUIDE TO THE ROMAN WALL. By R. G. COLLINGWOOD, M.A., F.S.A. Andrew Reid and Co., Ltd., Akenside Hill, Newcastle-upon-Tyne. 1926. 6d.

For the modest sum of sixpence may be obtained a handbook of about twelve thousand words, three plans of forts and a small sketch-map of the north of England in Roman times—all from the hand of a first-rate authority. The information supplied is practical and lucidly expressed. It will certainly be found to "give the visitor all he need know in a shape that will not burden anyone's pocket or knapsack"; and we commend it to all such as being indispensable.

THE TWILIGHT OF HISTORY. By D. G. HOGARTH [The 8th Earl Grey Memorial Lecture, delivered 17 February 1926]. Oxford University Press. 1926. 1s.

Dr Hogarth enunciates an important principle. "The history of humanity from first to last shows the index of civilization not to be art. The acme of art production has always been attained during political stages of autocracy or of limited aristocracy, which precede the acme of general well-being... Art declines in quality when it ceases to be the main concern of a dominant class, but civilization will still broaden and grow, because society enfranchised on a wider basis substitutes for art-interest a concern for the conquest of mechanical force." We must not, for example, make the mistake that Ruskin made, when he confused art and ethics. Neither bad painting nor ugly pottery imply social decadence; indeed inference from one to the other is most hazardous. Dr Hogarth attributes the decay of Cretan art to the overthrow, soon after 1400 B.C., of the old Cnossian Dynasty by Minos, the probable founder of the late Minoan Dynasty, which was Achæan.

But surely he overstates his case against 'pre-history' when he says that "it is no more than subjective guessing at the causes of surviving products of human activities...?" That there is a surfeit of guessing we know, and deplore; but so sweeping a condemnation is stultified by Dr Hogarth's own work, including this brilliant little essay.

THE GREEKS IN SPAIN. By RHYS CARPENTER, Professor of Classical Archaeology in Bryn Mawr College, Pennsylvania. [Bryn Mawr Notes and Monographs, no. 6. Bryn Mawr College, and Longmans, Green and Co., 1925].

This little book is a model which might be copied with advantage in Europe. The author combines scholarship with archaeology and he has the sure touch of the art critic. His style is irreproachable, and it is a pleasure to read his lucid account of an abstruse subject. The book consists of 116 pages of narrative and 64 of appendices, including

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references, a short but excellent classical bibliography, and a chronological table. There are two useful maps and 25 photographs, some of them indifferently reproduced.

Although, like all students of Spanish archaeology, Professor Carpenter is indebted to the researches of Schulten and Bosch Gimpera, and says so, he claims to have produced a connected account of Greek activities in Spain. There was need of such. (His bibliography contains a bare half dozen articles dealing with the same subject, and they are rather inaccessible). To have done so is in itself an achievement for which he deserves the thanks of all. His other claims entitle him to rank as an original investigator, and prove that it is possible for the right sort of specialist to produce good and valuable work without becoming unintelligible.

ANNUAL REPORT OF THE ARCHAEOLOGICAL SURVEY OF INDIA, 1923-4.

Edited by SIR JOHN MARSHALL, Director-General of Archaeology in India. [European agent—the Office of the High Commissioner for India, 42 Grosvenor Gardens, London, S.W. 1]. 1926.

By far the most interesting part of this Report is that which deals with the excavation of the Indo-Sumerian sites of Mohenjo-Daro and Harappa. Sir John Marshall is justifiably proud of these epoch-making discoveries which, as he says, at a single bound take us back to a period some 3000 years earlier than any that was previously known to exist in India. They establish the fact that, at least as long as 5000 years ago, "the peoples of the Punjab and Sind were living in well-built cities and were in possession of a relatively mature culture with a high standard of art and craftsmanship and a developed system of pictographic writing."

Harappa is in the Montgomery District of the Punjab on the river Ravi, 150 miles south-west of Amritsar. Mohenjo-Daro is in the Larkana District of Sind, about 150 miles north of Hyderabad and about 200 miles north-west of Karachi. Both sites lie in the plains of the Indus, though they are as far apart as London and Aberdeen. It would be morally certain that others like them existed, were we not informed otherwise by the same authority that they abound, especially "along the banks of the dried-up beds of the main stream and its estuaries, not only in Sind but in Bahawalpur State and the Punjab." It is therefore more regrettable to read throughout the Report of the financial stringency which has hitherto impeded excavation. The discoveries rank with those of Rawlinson, Schliemann and Evans; and the whole world is impatiently waiting for news of a kind which only the spade can release.

Though the sites are to be classed as recent discoveries the characteristic seals bearing the effigy of a bull and with inscriptions in an unknown pictographic script had long been known. "More than half a century ago some specimens of these seals were obtained by Sir Alexander Cunningham and published in his Report for 1875 (vol. v, p. 108, and plate xxxiii, fig. 1). Other specimens were subsequently acquired by the British Museum and published by Dr J. F. Fleet in the Journal of the Royal Asiatic Society for 1912. They should, therefore, have been well-known to orientlists, and must have been constantly seen by Mesopotamian experts in the British Museum." Not one single individual, however, appreciated their significance. It is hardly surprising therefore that, when more finds came to light, Sir John Marshall should have turned, not to recognized seats of learning, but to the *Illustrated London News*, "in the hope that, through the medium of that widely read journal I might succeed in getting some light thrown on their age and character by archaeologists in other countries. This

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hope, I am glad to say, was at once fulfilled. In the following issue of the *Illustrated London News* appeared a letter from Professor Sayce pointing out the close resemblance between these objects from the Indus Valley, and certain Sumerian antiquities from southern Mesopotamia; and a week later appeared in the same journal a longer article from the pens of Messrs. Gadd and Sidney Smith giving a more detailed comparison of the pictographic scripts and other antiquities found in the two countries." The result showed that "the Punjab and Sind antiquities are closely connected and roughly contemporary with the Sumerian antiquities of Mesopotamia dating from the 3rd or 4th millennium before Christ."

Sir John Marshall is most wisely proceeding slowly and has postponed detailed publication of results "until the excavations have progressed further and we can feel our way with relative certainty in this new and unexplored field." A fuller and detailed report is promised after the season 1925-6. It is good news that an American archaeologist with experience in Mesopotamia, Dr Mackay, went to India last year to help in the excavation of these 'Indo-Sumerian' sites.

The association of great rivers and ancient civilizations is a well-known fact. Hitherto the Indus has been an exception. Now that here too the expected evidence has been found we may hopefully look to the valleys of the other great rivers of the World; what has the Ganges in store, and the great rivers of Further India and China?

THE STONE AGE IN RHODESIA. By NEVILLE JONES. Oxford University Press, 1926. 120 pages, 40 illustrations. 12s. 6d.

The problem of prehistoric Africa and the correlation of its cultures with those of Western Europe in palaeolithic times has long intrigued prehistorians; so also has the question, "is Africa to be considered as a cradle or a museum of many of our early cultures?"

In the present volume the author's intentions are modest; but he is to be congratulated on a notable piece of work. He is not intending to deal with the prehistory of Africa, or even to enunciate strange theories: he describes industries and sites in Southern Rhodesia—for the most part studied by himself personally. Evidence of every kind—deduced from stratigraphy, typology, state of preservation of the objects, etc.—is collected and clearly tabulated, with the result that the reader accepts readily the statements made. In the latter part of the book the Bushman race and art come under review and here too is shown a clear grasp of details and their importance.

After a foreword by Sir Arthur Keith and an introduction to the subject with accounts of previous work, there are two short chapters on the Geological and Archaeological classifications used. In the latter a table of West European palaeolithic cultures is given and later a probable correlation with South African industries. One is perhaps a little sceptical of this attempt to correlate our upper palaeolithic, culture by culture, with African equivalents. It is a legacy from the past when prehistorians seem to have assumed that Western European cultures were necessarily world-wide in their distribution. The introduction of Solutreans—essentially a small north European culture—under the hideous designation Solutric (not an invention, of course, of our author) is surely a pity? A technique in flint-knapping somewhat resembling that used by the Solutreans (and indeed by other unconnected folk in other periods) in Europe may occur in South Africa, but why therefore must the Solutrean culture itself be dragged so far south from its probable cradle in Hungary? No, both Europe and large parts of Africa were at one time peopled by upper palaeolithic (neolithic) folk, but there were

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rapid developments on different lines in various areas. Even in Europe different developments are not all quite similar!

A chapter on the evidence of human fossils follows, and then an account of the lower palaeolithic cultures which is exceedingly interesting. Here much geological evidence is brought forward. Two series of gravels are demonstrated, the older containing rough (Chellean) tools, the later, fine implements recalling our Acheulean. The author, by the way, disagrees with Codrington and considers the Victoria Falls coups-de-poing as of the same age as the gravels containing them. The existence of a Mousterian industry at Taungs in another gravel of slightly later date than those mentioned above is also stated. Taungs, however, is of course outside the area under review. Most of the upper palaeolithic industries are surface finds and they are not much discussed. The account of the Bushman art is largely descriptive, but the fact is noted that whereas further south a more developed art with complicated scenes is depicted, the more northern examples in southern Rhodesia are simpler without elaborate scenes. A careful study of the superposition of techniques in certain Bushman painted caves (as can be clearly seen in Miss Tongue's well-known book) reveals several distinct ages, for the sequence of the techniques is always the same. Comparisons with the Rhodesian Bushman drawings on these lines might lead to interesting results. The author agrees with the opinion that the Bushman culture is to be connected with the same basal culture which spread over Western Europe at the beginning of upper palaeolithic times. Like environment, etc., may produce similar, though unconnected, industries, as it produces, to a large extent, similar needs. But environment can have little influence in the formation of an art technique, and the Bushman art and that found in rock shelters of late palaeolithic date in eastern Spain are too similar for the fact to be a mere coincidence.

"The Stone Age in Rhodesia" fills a real gap. The author has collected many facts within his area: as he himself says it will be for a later generation of pre-historians to generalize when all the information from other districts has been similarly published. M. C. BURKITT.

OUR EARLY ANCESTORS. By M. C. BURKITT, M.A., F.S.A., F.G.S. 8vo, pp. xii, 243. Cambridge: at the University Press. 1926. 10s. 6d.

Our increasing knowledge of details of the Mesolithic and Neolithic periods has called for a concise and authoritative textbook on the subject, and for this reason the present volume is opportune. The author intends it to be an introductory textbook for the student without going into "any kind of detail," and it must be confessed that it admirably fulfills its purpose. It deals chiefly with the Mesolithic and Neolithic periods and touches upon the Chalcolithic and Early Bronze Ages. The absence of detail emphasizes the salient facts, and for the first time the student can readily grasp the relative chronology and connexion, and probable origin of the various Mesolithic cultures. The contemporary Azilian and Tardenoisian industries rose from the old Aurignacian stock, as can be seen at the Grotte des Enfants near Mentone where the Aurignacian culture, undisturbed by Magdalenian and Solutrean influences, developed independently into the true Azilio-Tardenoisian. The Asturian and Kitchen Midden cultures, although dissimilar and unrelated, were contemporary and later than the Azilio-Tardenoisian and Maglemosian—the Kitchen Midden being a development from the last. The Campigian is closely connected with the Kitchen Midden but is not allied to the Asturian. The author treats separately of the eastern, northern, western and Mediterranean areas of Neolithic Europe, and describes the characteristics of the peoples, pottery and implements

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of each. The infeasibility of the Egyptian theory of the origin of megalithic building is touched upon. As for the Carnac area, it is suggested that the culture there was derived from Crete by way of Spain, and that it was either of Chalcolithic or Early Bronze Age date. Mr. Burkitt devotes a chapter to Art, and shows the similarity of the engravings on the stones of Gavrinis to those at Sess Kilgreen in Ireland, and the connexion between the stone at Clonfinlough and the Spanish art group III. The effects of climate on the development of culture are dealt with, and stress is rightly laid on the importance of accurate distribution maps. The book can be strongly recommended. It is not too abstruse for the amateur and the serious student will derive much benefit from it.

R. C. C. CLAY.

A CENTURY OF EXCAVATION IN THE LAND OF THE PHARAOHS. By JAMES BAIKIE, F.R.S. 8vo, pp. 252; plates 32. London: The Religious Tract Society. 1926. 7s. 6d.

At the present day too many of the popular books on archaeology are written with the sole object of airing some crazy misconception. Dr Baikie however has written a popular book giving an outline of the work that has been done for archaeology in Egypt and incidentally he refutes such whimsical theories as that the Pyramids were astronomical observatories or standard measures. He champions the cause of true scientific research and recounts the harm that has befallen archaeology through the cupidity of selfish collectors and ruthless vandals. The book gives in a very readable form the story of the pioneers, hampered as they were by lack of knowledge and the interference of officialdom, and goes on to describe the Pyramids with their sad story of pillage in ancient times. It was the fear of such robbery that impelled the Pharaohs to make their tombs so massive and so intricate, cherishing the hope of a future life similar in detail to that which they enjoyed upon earth. There remain in the different pyramid fields about 70 pyramids of various sizes and forms and constructed with slightly differing degrees of mathematical precision. What is left of the great temples of Karnak, Luxor, Edfu, Dendera, and that of Queen Hatshepsut are witnesses to the skill of those master builders whose edifices were not only beautiful in themselves but also conformed to their surroundings. It was a good day for Egypt and science in general when the Egyptian Exploration Fund began work in 1893 at Der-el-Bahri. Thanks to its labours we have learnt much of the every-day life of the man in the street in ancient Egypt, and consequently more of its history—for history is the story of the ordinary man and not of that of potentates alone, and as Dr Baikie aptly remarks "broken potsherds may mean far more for the reconstruction of history than intact colossi." It was from the xvth to the xixth Dynasty that the fashion of pyramid building flourished. The tombs of the kings at Abydos had all been previously rifled, but the exquisite bracelets of the Queen of Zer and the other few remaining pieces of jewellery indicate that life even in those times was highly organized. The tombs in the Valley of the Kings have long been known and Strabo mentions 40 of them. Belzoni's discovery of the sepulchre of Sety I was eclipsed by the finding of that of Tutankhamen in 1922 by Lord Carnarvon and Mr Howard Carter. Such wealth and magnificence of grave furniture belonging to a little-known and short-lived monarch makes us wonder what must have been found in some of the tombs of the greater kings by those who were the first to open them. Dr Baikie treats of the unequalled craftsmanship of the jewellers, the greatness of the monumental sculptors and the skill of the portrait sculptors. This book should be widely read; it is well written, and the enthusiasm of the author for his subject is evident in every page.

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ROMAN SOCIETY IN GAUL IN THE MEROVINGIAN AGE. By SIR SAMUEL DILL. Macmillan, 1926. 8vo, pp. xiv, 566. 21s. net.

Not only specialized students of ancient history, but a wide circle of readers able to appreciate vivid descriptions of the manners of another age, have been grateful to Sir Samuel Dill for his two books on the social life of the middle and late Roman Empire. No one who had read them is likely to forget them; the author's gift for painting picturesque and strongly characterized sketches of ancient social life has long given him a place by himself among historical writers; it is not too much to say that one corner of the mantle of Gibbon rested upon him. When, after his lamented death, it was made known that he had left a third volume, half finished, one hoped for great things; and these hopes have been more than realized.

The new volume has been edited by Professor C. B. Armstrong, with whom the author had discussed its arrangement and contents, and whom he had asked before his death to prepare the book for publication. It was a task involving much labour, and requiring, as is evident, tact and judgment; the provision of notes and references to such a work is arduous, and the polishing of an unfinished manuscript by another hand is a task which no one would undertake except as a labour of love. Both tasks have been well done. It is true that there are still roughnesses of style, repetitions of incident, and here and there a judgment, an emphasis, or even a statement of fact which second thoughts might have altered; but to have smoothed away all these things would have involved robbing the book of just that personal quality which makes it visibly the work of its author.

Of the three volumes, this last is perhaps the most interesting. The subject-matter of the other two is relatively familiar, and the problems with which they deal are relatively simple; but with this book we plunge into the heart of the question—what process led from the world of the later Roman Empire to that of the Dark Ages?

From a purely historical point of view, this problem is important just because it is a problem; a question in which historians ought to be interested just because they do not know the answer. But there is a further reason why this problem is of special interest to the modern world. Of all past historical periods, the Roman Empire is that which most closely resembles our own; and we are most of us aware that our civilization is exposed to forces which seem bent upon its destruction. Not to wonder what is going to become of us would be less than human; and to a generation afflicted by this question there is no more valuable study than that of historical analogies and parallels. History never repeats itself; but its processes may resemble one another so closely that, so long as we duly attend to the features peculiar to each, it is not impossible to argue from one to another, and use Antiquity as a lantern to explore Futurity.

The peculiar value of Sir Samuel Dill's book lies here. Political history in the traditional style is practically useless. It only tells us that the Roman political system collapsed and that the Merovingian system, since we are speaking of Gaul, took its place. Politically, there is no continuity; there is only a clean cut; and a clean cut is not history. When we turn to the structure of society, we get an entirely different result. In Merovingian Gaul we find two civilizations existing side by side, differentiated originally at every point; by the time of Clovis, a certain assimilation has set in; the older civilization has converted the newer to its own religion, but the distinction of race and social organization is still emphatically asserted. Indeed, the inferiority of the Roman to the Frank in the social scale of values is legally sanctioned. Yet, in spite of

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this, the Roman preserves his identity ; his social organization remains intact, and is able by degrees to impose itself on the conquerors to such an extent that from Teutonic Franks they end by becoming Frenchmen. Thus the Frankish invasion, though it swamps the structure of Romanized Gaul beneath a flood of Teutonism, does not disintegrate this structure ; it remains substantially intact, and bides its time to assert itself. This reading of the evidence is inevitable, granted the truth on which the author often insists, that in spite of upheavals, wars, the destruction of wealth, and the fall of ancient families, the old Romano-Gaulish landed estate survived the storm, and pursued a peaceful existence throughout the period of transition.

This is the heart of the problem. The survival of Roman tradition in Gaul, and its triumph over the Teutonic tradition politically superimposed upon it, was a function of the villa system, the landed estate which acted as the trustee for all the ideas of Roman civilization.

The English student has much to learn from this conception with regard to the history of his own country. In Britain, the opposite process took place. The Teutonic invader triumphed over the Roman tradition, not only politically but in language, in religion, and in economic and social organization. Why this happened in Britain, and not in Gaul, is an old problem ; a problem which has driven innumerable historians into positive misstatements of fact ; yet, in the light of the conception so clearly expounded in this book, a problem by no means insoluble.

One historian, misled by a hasty interpretation of Gildas and the Anglo-Saxon Chronicle, fancies that the Saxons blotted out the Romanized Britons by fire and sword. Another, realizing the sheer impossibility of such a military feat, boldly declares that the Saxon conquest never happened at all ; and that we are the Romanized Britons. The truth, as it appears to the present reviewer, is less exciting but more credible than either of these fancies.

The Romanization of Britain was a very real thing. Haverfield, who discovered it, may have exaggerated it in a few points of detail ; but it was a genuine discovery, not a mare's nest. What he did not sufficiently recognize was that it was skin-deep. It affected at first the tribal aristocracies ; and later the whole of that large middle class whose country houses we call Roman villas ; but it never struck its roots deeply into the masses of the population. In the country villages, and perhaps also in the mean streets of the towns, the only Romanization that took place was the acquisition of Roman pottery, coins, and such-like externals of civilization. And even in this restricted sphere, Romanization was far from complete. In countless out-of-the-way villages, it is probable that native fashions persisted unchanged. Thus, it is almost startling to learn that ancient British coins continued to be struck at Hengistbury down to the late second century. By the fourth century, Roman civilization in Britain, with all that it implied in the way of social, economic, political, religious, and linguistic habits, was universal in the upper and middle classes, but had left the lowest classes, and especially the country villages, all but untouched. Now this was exactly the same in Gaul. Sir Samuel Dill quotes more than one anecdote showing that the peasants in out-of-the-way places were in a state of savagery, that is, were not Romanized, by the sixth century. Thus we cannot argue that the failure of Roman civilization in Britain to conquer the Saxons was due to the fact of its being less wide-spread or less deeply rooted than in Gaul.

The clue to the difference seems to lie in the fact that the great disaster of 367, in which the whole country was over-run not by Saxons but the far more destructive Picts,

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involved a systematic destruction of villas. It has often been noticed that the life of a Romano-British villa normally goes down to this period and there ends abruptly. But the importance of this fact has, I think, never been observed. With the destruction of the villas, Roman civilization in Britain was destroyed; for it was the civilization of a class, not that of a homogeneous social organism. The people who remained were significantly called by their conquerors not 'Romans,' as in Gaul, but merely 'Welsh.' The Celtic revival of which Haverfield wrote was not so much a revival of Celticism, as the survival of those lower classes which had never been at all deeply Romanized.

Thus the real destruction of Roman Britain, which was a social and economic affair, not a political, took place in 367; and nothing like that ever took place in Gaul. By the time the Imperial government abandoned Britain, there was nothing left worth keeping. Had the landed classes with their villa estates remained intact, Roman civilization would have survived the Roman evacuation in Britain as it did in Gaul, to set its mark on Anglo-Saxon society. Whether that would have been a good thing or a bad thing for the world's happiness, is another matter. But if it was a good thing that Roman civilization, a romance tongue, and the Christian religion, survived in Gaul, it is worth our while to realize that the reason why these things survived was because the social class survived whose property they were.

R. G. COLLINGWOOD.

REPORT ON THE EXCAVATION OF THE "A" CEMETERY AT KISH, MESOPOTAMIA. By ERNEST MACKAY. Field Museum of Natural History, Anthropology Memoirs, Vol 1, no. 1. Chicago, 1925. pp. 61, and 20 plates.

The most dramatic sidelights on the life of vanished civilizations and peoples have often been afforded by a study of ancient graves; and recently discovered tombs of a Norse queen at Oseberg and of Tutankhamen in Egypt are obvious instances in point. For the serious archaeologist the study of cemeteries has another advantage: the funeral gifts interred with a single corpse present the most perfect example of a "closed find"—a group of objects unmistakably in use together at the same epoch. The chronology of predynastic Egypt is based entirely upon a comparison of various types of objects found in association in the many cemeteries excavated in the Nile valley.

Mesopotamia has been sadly neglected in this respect. The earlier excavators were concerned primarily with objects of artistic or epigraphic interest and were apparently entirely unconscious of the meaning of a "closed find." The excavations of the Germans at Assur and of the British Museum at Eridu and Ur marked the first steps towards more scientific methods, but to Mr Mackay of the Oxford and Field Museum Joint Expedition, falls the honour of publishing the first detailed account of a necropolis explored on modern lines.

The thirty-eight tomb groups that he describes naturally do not suffice for the establishment of a comprehensive system of sequence dating such as Sir Flinders Petrie has worked out for Egypt, but their furniture throws a new light on the more every-day arts and crafts of ancient Babylonia and thus provides terms of comparison with barbarous lands to the north and east. The pots, weapons, and ornaments of the common people in Mesopotamia were previously scarcely known. In view of the large claims for Egyptian influence that are being made to-day on the strength of comparisons between grave-goods from the Nile valley and other regions, material of a like order was badly needed for the kindred area of the Tigris-Euphrates valley.

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Of course our cemetery, on the dating of its excavators, only takes us back to the period of the Royal Tombs of Naqadeh in Egypt; but behind cemetery "A" lies a long past represented by earlier buildings at the same site, by the painted pottery of Jemdet Nasr and the still earlier wares of Tell el Obeid. When this is remembered, a comparison of the pottery and metal work from Kish with those of Europe, shows that pan-Babylonianism may still be a serious rival to pan-Egyptianism. Let us take a few instances.

The pottery is all made on the wheel, a device not introduced into any part of Europe till a thousand years later, but it has curious analogies with barbaric wares used in various parts of our continent Europe, not to mention India. Almost every grave was furnished with a "brazier," an open dish standing on a high hollow pedestal that is generally perforated. Dishes on a high hollow pedestal also perforated were typical grave-goods at Lengyel in Hungary and recur in many contemporary cemeteries and settlements in the Danube Valley and Transylvania; the so-called "vase-supports" found in megalithic tombs in France and the Channel Islands have a similar structure and again exhibit the curious perforations in the base.

No less general at Kish were large handled jars with a female bust modelled in high relief on the handles. We see the same idea at work on the well-known anthropomorphic vases of Troy and the middle Danube.

The implements and ornaments of copper buried in the graves by the citizens of Kish are peculiarly instructive for the history of metallurgy. The battle-axes bring us near to the origin of the modern shaft-hole type of axe-head. The hole for the shaft was here made simply by bending the butt of the axe back upon itself so as to form a loop. A reminiscence of this method of manufacture may be seen in the imitations of rivet-heads ornamenting the body of an axe from a Copper Age tomb at Tsarevskaya, north of the Caucasus.

At Kish again we meet the earliest examples of the eyelet pin that was destined to become typical of the European Middle Bronze Age. One specimen in which the neck has been hammered out flat bears an engraved pattern almost identical with that found on the round swollen necks of the European pins.

Again the spiral ear-rings with their flattened ends take back an additional thousand years a type familiar to European archaeologists from the hoards of Troy II and the Early Bronze Age graves of Central Europe.

Every student of prehistory will therefore do well to study minutely Mr Mackay's admirable work and will have every reason to be grateful for the prompt publication of his important results. We hope his example will be followed by other excavators. At the same time we may express the wish that the metal objects should be analysed and that the excavator's statement that the daggers and axe blades have been "cut out of sheet copper" should be tested by microscopic examination. V. GORDON CHILDE.

DOWNLAND MAN. By H. J. MASSINGHAM. London: Jonathan Cape. 1926. 8vo, pp. 422. 21s.

One result of the work of General Pitt-Rivers was that archaeology from being a hobby became a science. Now the alpha and omega of science is accuracy: accurate observation, accurate comparison and logical deduction. To jump with insufficient evidence to conclusions indicates that there is a preconceived theory around which must be gathered at all costs some scraps of supporting evidence. This is unscientific and has

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been unkindly dubbed feminine ; but whereas women are said to jump invariably to the right conclusions by the aid of inherent powers of intuition, Mr Massingham's leaps are usually wide of the mark. A person who thus jumps to conclusions should not complain if, on consulting a doctor for indigestion due to an indiscretion of diet, he has his appendix removed forthwith.

Mr Massingham fights a good fight for the forlorn cause of the Egyptian theory of the origin of megalithic building. His most formidable weapon, for which we must give him full credit, is his undoubted literary ability, and as he wields his able pen he sings a hymn of hate against archaeologists in general, and then rushes in to attack a selected few ; but it must be admitted that the views of all those he attacks are not accepted by every prehistorian.

He suggests that the Neolithic was the Bronze Age and the Bronze Age the Neolithic ; and after turning this academic somersault he proceeds to stir the whole mass up together into a hotch-potch which he would have us term the archaic or megalithic. He believes that the Bronze Age (whether his or ours he does not say) developed exclusively from the Neolithic and was not influenced from without, and he laughs at those who state that the beaker came from the Rhine. He lays great stress on the fact that beakers have been found with Neolithic pottery. The many examples of this association only go to suggest that the so-called Neolithic pottery was made very late in that period, and many prehistorians at the present day doubt if there was any pottery in Britain much earlier than the beaker. But to return to our book. The author argues that Neolithic man knew bronze and all the other materials which he terms " givers of life " and that they did not use it themselves, but unselfishly acted as miners and collectors for their masters, the Children of the Sun. In the intervals of their labours these simple-hearted slaves rushed from East Anglia, the Mendips, Sussex and other ends of Britain along the high level trackways to participate in the religious and social functions at Avebury. In return they were supplied with corn from the Wiltshire terraces. This corn was apparently stored in the great earthworks of the south when the motor lorry broke an axle or the transport union went on strike. The author ridicules the idea that Yarnborough was a defensive camp. It was not only a granary but also a religious structure, and owes its position to aesthetic reasons alone. Yarnborough has deep ditches, Avebury has a deep ditch : therefore Yarnborough is contemporary with Avebury. Q.E.D. It is all so very simple. He suggests that the shape of some of the long barrows of Wilts and Dorset are " remarkably like an overturned ship." To suggest that they are remarkably like the shape of a small boy after a Christmas dinner would be as illuminating. He complains that archaeologists who have excavated pit villages in Wiltshire have dated them as Early Iron Age because the objects found in them have belonged to that period alone. The author knows that his archaic peoples must have lived somewhere, and " the obvious deduction warranted by plenty of evidence as to the Celtic occupation of sites inhabited centuries before the Celtic day " would lead him to date them all as megalithic.

There are some startling statements in this book. He tells us " I have never seen a single Iberian tool that can quite definitely be called a weapon of war," and that " the diminutive size, careful workmanship and association of flint arrowheads with mortuary remains betray their usage for ornament and ceremony." Has he seen the leaf-shaped flint arrowheads still embedded in a human vertebrae which is preserved in the Arles Museum ? It was found in the Grotte d'Arnaud near Arles ; this is an artificial burial cave, not much if at all later in date than our British long barrows. It is common

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knowledge that the weapons of the chase were the weapons of war. Mr Massingham's long barrow at Rainscombe near Martinsell is actually the earthwork of a promontory camp. The statement that three segmented beads came "from Stonehenge itself" is incorrect. It is untrue that "there are just or almost as many sarsens in the Stonehenge district as on the Marlborough Downs," and that "man was not the pawn of geographical conditions" is contrary to general opinion. To argue that because there is a long barrow on King's Play Hill and the slopes of the hill are terraced, therefore the terraces are Neolithic, is to argue that because Salisbury Cathedral is near the gravels on Milford Hill therefore Salisbury Cathedral is early Palaeolithic.

In conclusion we may repeat, in another association, the words of Prof. Elliot Smith in his introduction to the book: "What is most needed at the present time is the elimination of learned nonsense."

R. C. C. CLAY.

PREHISTOIRE DE LA NORVÈGE. By HAAKON SHETELIG, Oslo, 1926. Williams and Norgate, London. 280 pages, illustrations. 7s. 6d.

This excellent book offers an opportunity of studying a country, which generally speaking, archaeologists have neglected. It has been written with the object of linking Norway with the evolution of the other parts of Europe as a whole, and it enables us to gain a clear conception of the development of the prehistory of that country.

We must cease to visualize a cold and barren land, unsuited by Nature to the wants of Man, and one which only found itself inhabited from time to time under compulsion. It has been proved that the west coast of Norway during the last Ice Age remained ice-free, and therefore, was able to offer Palaeolithic man a desirable retreat. Up to the present the earliest definite evidence of man's occupation comes from a series of open-air sites along the coast between Bergen and Trondhjem. These littoral sites have been geologically equated with the Magdalenian period of Central Europe. The industry is considerably older than that of Mullerup in Denmark and consists of forms resembling Upper Palaeolithic types, including the graver; microliths, picks, axes, adzes and tranchets.

Owing to the scarcity of flint, the primitive Norwegian had to recourse to volcanic rock and schist. This expedient is well illustrated by the celts of the Nøstvet period, an industry peculiar to Norway, and marking the commencement of the Neolithic in that country. It flourished contemporaneously with the Shell Mounds of Denmark. The author continues to trace out, step by step, each succeeding cultural phase, analysing the influences which fostered it, whether spontaneous or suggested from outside. He treats at length of the rock engravings of the "Arctic period," and discusses the difficulties met with in interpreting their origin.

M. Shetelig is of the opinion that the "schist period" which thrived at the end of the Neolithic, was evolved from the epipalaeolithic cultures. It appears that examples of megalithic tombs are sparsely represented in Norway, and only appear at the very end of the Neolithic, whereas Bronze Age tumuli occur in large numbers.

Most types of Bronze Age implements in Norway are based upon foreign models, but that Norway also made use of an independent culture is proved by forms which are wholly confined to that country.

The further one travels northwards the less is stone found to have been replaced by bronze, and it is interesting to note that the Bronze Age influence ends at latitude 68 and that Early Iron Age relics do not occur north of 60 degrees, facts which seem to

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indicate that decline in climatic conditions which geologists and meteorologists consider to have set in at the commencement of Early Iron Age times. Iron was not smelted in Norway until quite recently. Hitherto the practice had been to extract it from limonite, of which process the author supplies an interesting account. It appears that the Hallstatt period was soon replaced by that of La Tène.

Evidence is not forthcoming to show that the Romans actually established themselves in Norway, although much Roman pottery glass, jewellery, and the like has been found distributed over a large area of the country. It is known, however, that under Augustus the Roman fleet sailed round Jutland, thus gaining access to the Baltic, where would be found the incentive for a maritime trade via Germany and the mouth of the Rhine. In the fourth century A.D. the links with Rome became severed upon the commencement of the "period of Invasions," and the establishment of Merovingian influence. By the eighth century, this Merovingian power was displaced by that of the Vikings, when contemporary archaeological evidence is corroborated by historical records. Under the Vikings Norwegian art attained its highest quality.

Readers will find that the author is a keen disciple of the school whose slogan is "ex oriente lux;" but although we may be willing to accept it as a fact that from the East emanated many of the developments which benefited the European continent, nevertheless it remains entirely without proof that the Scandinavians contributed nothing to the advancement of Central Europe; yet this is what M. Shetelig would have us believe.

An authoritative book has been produced, and it has been ably demonstrated that the records of the prehistoric peoples of Norway can be made as engrossing as those of other European countries.
J. P. T. BURCHELL.

ETRUSCAN TOMB-PAINTINGS. By FREDERIK POULSEN, translated by Ingeborg Andersen. Oxford University Press, 1922. Small 4to. 63 pages, with 45 half-tone illustrations. 15s.

An extremely useful introduction to a subject which is very little known and deserves far more study than it has generally received. The frescoes in Etruscan tombs constitute an important part of our small heritage of ancient painting, and have a certain value also for the information that they give us as to the life of the people. This information however is somewhat curtailed in its range by the circumstance that the subjects and their composition are entirely dominated by Greek influence. Practically no Etruscan painting is earlier than the sixth century. It is the direct outcome of the study of Corinthian and attic vases, carried out sometimes by native artists but sometimes actually by immigrant Greeks.

Professor Poulsen is an admirable guide through the intricacies of this hybrid art and brings out its double interest, on the one side for the student of Etruscan archaeology, and on the other for the Hellenist who may see in it an enlargement of his own field. It is the first systematic treatment of the subject that has ever been undertaken and will remain a valuable handbook even when such comprehensive works as Weege's *Etruskische Malerei* have supplied a more complete series of copies on a more luxurious scale. In Professor Poulsen's book the illustrations are principally taken from facsimiles and drawings collected towards the end of the nineteenth century in the Ny Carlsberg Glyptothek at Copenhagen. These were executed for Carl Jacobsen by Italian painters, who produced for him a series of copies far superior in quality and accuracy to certain

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others that have been made for the museums of the Vatican and of Florence. They are not of course, as the author fully recognizes, completely satisfactory, but they supply an admirable basis for introductory study. The author has selected the most characteristic scenes and has treated them in chronological order beginning with the Tomba Campana at Veii, and concluding with the Tomba del Tifone of Corneto. The several periods are carefully distinguished and the extent and character of the Greek influence in each of them are discussed with judgment and balance. Throughout there is an admirable self-restraint in the treatment of all hypothetical questions as to religion and custom; a broad sanity which is very welcome in a field where the temptations to fancifulness are numerous.

Modestly addressed in the first instance to University students at lecture-courses, this book deserves to be read and mastered by a far wider public.

D. RANDALL MACIVER.

THE UPPER PALAEOLITHIC AGE IN BRITAIN. By D. A. E. GARROD.
Oxford University Press. 211 pages, illustrated. 12s. 6d.

The production of this book fulfils one of the many obligations still outstanding to British archaeology. It constitutes a summary of Upper Palaeolithic finds made in Britain from 1823 when Buckland first dug in Paviland Cave, Wales, until Mr Leslie Armstrong's excavations at Creswell Crags, Derbyshire, which are now in progress.

The subject matter is divided into three parts :—

- (1) Upper Palaeolithic Cave sites,
- (2) Open-air sites referable to the Upper Palaeolithic,
- (3) The Epi-palaeolithic period.

The summary and conclusions do not however do justice to the knowledge the author possesses on the subject. Students of archaeology have every reason to thank Miss Garrod for the pains she has taken in collecting the facts, whilst to those who wish to study in detail the Upper Palaeolithic period of Britain, the bibliography at the end of the volume is indispensable.

J. P. T. BURCHELL.

CARVED ORNAMENT FROM IRISH MONUMENTS. By H. S. CRAWFORD,
with a preface by R. A. S. MACALISTER. Published by the Royal Society of Antiquaries of Ireland, Dublin.

The student who is working on the reconstruction of any phase of the early history of the British Isles with the aid of archaeological material is much hampered by the lack of books in which the data bearing on a given problem are collected and systematized. Some day, we may hope, a School of British Archaeology will be founded and endowed, and one of its functions should be the systematic subject indexing of the vast and scattered literature of archaeology in Britain.

Much of the material existing in these islands is, however inadequately recorded, requiring close study in the field before it can be made available for students, and no better service can be done by any archaeologist to-day than by photographing, analysing and placing on record fully and scientifically such material. Irish sculpture of the early Christian period comes within this category, and Mr H. S. Crawford, who has examined the monuments in the field, and placed the results of his research on record in the book under review is to be congratulated on an admirable piece of work.

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Professor Macalister in his preface justly remarks that the richness of Irish ornament in MS. illumination was a familiar commonplace, but that the literary sources of information available to the student give little indication of the wealth of Ireland in the analogous sculptured art, and only analysis of the designs, panel by panel, could give the needed picture.

The full title, "The Handbook of Carved Ornament from Irish Monuments of the Christian period," exactly indicates its character. It illustrates and classifies the various types of design found on such monuments, which date from the ninth to the eleventh centuries. There are fifty-two half-tone plates, fifteen of which are of crosses or large fragments of crosses. The other plates show the range of the ornament found on the monuments. They are all photographs, either from the originals or, where the surface colour of the original is so varied as to make the elucidation of design with the aid of photography impossible, from good casts. A feature specially to be commended is the presentation of each design twice over—on the left hand page the untouched photograph, on the right the design restored as far as may be; we thus have "the present state of the carving and its original appearance as inferred from a careful study." The student has the best of both worlds; from the one illustration he can draw his own deductions, the other gives him the benefit of Mr Crawford's close and fruitful study of the art of the monuments. If in some cases it is apparent that the restoration gives more detail than can be read into the untouched photograph, the author has a perfectly sound answer ready; portions of the same design on parts of a given monument can be studied and utilized for a reconstruction, while the photograph only reproduces one limited portion of the design. The designs illustrated are classified into Abstract and Biomorphic, the former including spiral, star, interlaced and fret patterns, the latter animal, human and symbolic forms. The author's aims are strictly limited; no attempt is made to provide theories as to the origins of the patterns, and archaeological parallels are sparingly quoted.

Spiral patterns in particular have a long history behind them, and the revivification and development of this pagan motif in Christian times is one of the most interesting facts in the history of European ornament. The extraordinary elaboration of which the motif is capable is well seen on plate XVIII. The remarkable power of forming intricate and symmetrical decoration possessed by the pagan Celts, but only brought to full fruition in Ireland under the influence of Christianity, is indeed apparent in every illustration in the book.

Students of Anglian and Scandinavian art will find much new material of familiar type in the Zoomorphic group of patterns, e.g., figs. 84, 89, 90, 94, 158; but there is also much which reveals the originality and ingenuity of the Irish craftsman. The curious variety of art motives which drifted into Ireland during the period under review is well illustrated by the symbolic designs, many of which are derived from the Bestiaries. The majority of the human forms are poorly rendered; a panel from the North Cross, Ahenny, is an interesting exception, representing a chariot and horsemen. It is probable that chariot warfare survived later in Ireland than any other part of Europe. The progress across Europe from east to west of this mode of warfare, and its suppression in favour of cavalry tactics as successive peoples (again from east to west) secured the much-desired larger breed of horse forms one of the most interesting features of the protohistoric period of Europe.

The strength of the La Tène art of the Early Iron Age lies in its power of abstract

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design ; its weakness in its delineation of human and animal forms. Precisely the same strength and weakness are shown in the art, seven hundred to a thousand years later, produced in the only Celtic-speaking area which did not come under Roman influence. This similarity suggests that the conquest of the island by Celtic speaking peoples from the continent represented a strong infusion of new blood and not merely the intrusion of warriors few in number, who became a dominant aristocracy. Space will not permit us further to discuss the problems suggested by the examination of this fascinating volume. No archaeologist engaged in comparative work in this country can afford to be without it, and the members of the Royal Society of Antiquaries of Ireland by whose subscriptions publication was made possible, are to be congratulated. Should a second edition be called for, the author should include a map of Ireland, showing the distribution of the monuments.

CYRIL FOX.

A CENTURY OF EXCAVATION IN PALESTINE. By PROFESSOR R. A. MACALISTER. London : The Religious Tract Society. 1926. 8vo, pp. 335 and 36 plates. 10s. 6d.

The author divides this book into five chapters—A sketch of the history of excavation in Palestine, excavation and topography, excavation and political history, excavation and cultural history, and excavation and religious history—with a useful bibliography at the end.

As long ago as A.D. 326 Queen Helena excavated in order to find the Holy Sepulchre, but it was not till about 1860 that modern excavation began, although from the sixteenth to the nineteenth centuries various travellers left us more or less useful accounts of their journeys. The Palestine Exploration Fund was inaugurated in 1865, and one of its first tasks was the great survey of Palestine by Conder and Kitchener. Later on work was carried out by American, French, German, Austrian and, since the war, Jewish societies. The author describes the formations of *tells*, or the mounds that conceal the remains of ancient cities, and the *khirbehs* or visible ruins dating as a rule from a period not earlier than the Roman. The pre-Jebusite or Canaanite culture was far superior in every way to the subsequent Hebrew—a culture that in spite of its literary attainments was deficient in inscriptions and artistic work in general. The Philistines however under a strong Aegean influence later raised the cultural status of the Jews. The former were the "People of the Sea" who were so decisively beaten by Ramessu III (1198-1167), and who on being driven back from the shores of Egypt settled on the seaboard of Palestine. "It might almost be thought" says Professor Macalister, "in a superficial view of the excavations that the excavator and the historian were working in totally different fields ;" for there have been no traces of the kings of Israel who loomed so large in the pages of the Old Testament. There is evidence of human habitation in Palestine during all the Palaeolithic periods with the exception of the Solutrean. The author does not agree with de Morgan's theory that the Neolithic period was totally absent in western Asia. The Bronze Age which differed in many details with that found in Europe gave place to the Iron Age at about the time of David, or roughly 1000 B.C. Engravings on the crust of flint scrapers are sometimes found, but the tranchet is unknown except for the cache at Gezer, and arrowheads are usually of the leaf-shaped variety. The fact that one at least of the standing stones at Gezer is of a kind foreign to the neighbourhood recalls the Blue Stones at Stonehenge. Cupola or cup markings on stones are common to sites of all periods in Palestine, but as elsewhere their purpose is unknown. "Its

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(Palestine's) entire culture was derivative. Babylon, Egypt, Crete, Rome, each in turn, lends its helping hand ; never is it stimulated to make an effort for itself." The difference between the pilgrim of former days and the modern tourist is shown in the following passage : " The pilgrim was guided by an ecclesiastic who had renounced the world (at least in theory) ; the tourist is guided by a dragoman who renounces nothing that he can lay his hands on." R. C. C. CLAY.

EVERYDAY LIFE IN ANGLO-SAXON, VIKING AND NORMAN TIMES.

By M. AND C. H. B. QUENNEL. London : B. T. Batsford, Ltd. 1926. 8vo, pp. 123, 82 illustrations. 5s.

This book completes the *Everyday Life Series* from Palaeolithic to modern times, and the authors are to be congratulated upon the accomplishment of a well-written, well-illustrated and painstaking work. The series is designed primarily for children, and it is to be hoped that before very long it will become part of the normal curriculum of every boy and girl. The style and the numerous illustrations will appeal to the older child, who, if intelligently instructed, is naturally interested in things of the past. With the education of the child in the rudiments of archaeology, we can hope for the disappearance of vandalism which, through ignorance, is too prevalent even to-day. Some of our museum curators are already doing good work in this direction and their labours will undoubtedly bear fruit. But it is not to the child alone that this series will be of service. Time and again we are asked by persons who have become interested in archaeology and who wish to go deeper into the subject, " Which is the best book to begin with ? " In future our answer will be " Quennell's." R. C. C. CLAY.

OUR HIGHLAND FOLKLORE HERITAGE. By A. POLSON, F.S.A. SCOT. Inverness : The Northern Chronicle Office. 1926. 8vo, pp. 167. 5s.

This collection of beliefs and stories gathered from the north of Scotland is very welcome as it puts on record some of the traditional lore of the past which, thanks to the written word, the facility of communication and the increase of knowledge, is rapidly becoming a thing of the past. Folklore is now, and deservedly, coming into its own ; and its co-operation with anthropology and archaeology is as necessary to the progress of science as the team-work of the various persons in an operating theatre is necessary to the success of an operation. It is interesting to notice how widespread are certain beliefs such as the power of amulets and the healing properties of particular springs, and the *corp creadh* is an example of sympathetic magic that can be traced back to the days of the Upper Palaeolithic peoples whose paintings of animals on the walls of caves were thought to bring them luck in the chase. The *teine eigin* or " need fire," kindled as it is by the friction of one stick upon another or the rotation of an upright stick in a prepared socket, must have had its origin in the far distant past, and has its modern counterpart in the bow-drill of the Eskimos and the stick and groove of the Polynesians. Birth, marriage, death, ghosts, fairies, kelpies, hallowe'en and yule-tide are but a few of the subjects that the author treats of ; and the avoidance of over much explanatory matter adds to the pleasure of reading. Mr Polson thoughtfully informs us as to which side of the bed to get out in the mornings, and reassures us that " the Old Celts had quite a variety of tricks by which they could cheat the Devil." R. C. C. CLAY.

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RACIAL ORIGINS OF ENGLISH CHARACTER. By R. N. BRADLEY. London : Allen & Unwin, 1926. pp. 192. 6s.

There is much interest abroad in all that relates to the evolution of men and the interpretation of their diversities in time and space, and the author here presents us with an amusing sketch, full of shrewd hits, which is at any rate on a far better level than the diatribes of H. S. Chamberlain and L. Stoddard. Unfortunately we need to know far more of the associations of physical and psychical features, and to have much careful weighing of the respective powers of environmental-historical influences and racial hereditary traits. Nevertheless the suggestion of the Nordic ruler with his games, his conventional pride, and his half-kindly contempt; of the anabolic Alpine looking upon death as a negligible bridge to higher anabolic successes; of the intellectual Beaker-man compounded of and understanding both Alpine and Nordic; and of the Mediterranean steeped in feeling and passion, all have some justification. The Mediterranean type is perhaps the least adequately treated; his tendency to reckless multiplication in the alums of cities is rather hastily ascribed to racial tendencies, whereas a case could be made out for looking upon it as the outcome of conditions of life which have not encouraged care for the morrow. Mr Bradley is, no doubt, on right lines in ascribing much that we value in British life to the fact that in our island environment we have found so many opportunities for expression of the characteristics of that multiplicity of types which we owe to our position at the end of zone of contact between racial and cultural movements from the Mediterranean on the one hand, and the European plain on the other. The recognition of the type of the "Beaker-man" is an interesting point in this book. Bradley accepts from Peake and Haddon the name Prospector for the stalwart dark broadhead of many west-coast patches in Europe and the British Isles; he need have no doubt about the occurrence of the type, but the name is open to question, and his suggestion that it is a variant derived by modification of the Mediterranean is very doubtful. He is even more speculative than usual in an appendix on language, where he develops the theory that something akin to Arabic had influence long ago on place-names in south-west Europe. The distribution of place-names with certain prefixes is even more remarkable than Bradley suggests, but it is doubtful whether in this matter he does more than stimulate criticism. The reviewer realizes with some regret what a different book it would be possible to compile on the bases of consideration of most of Bradley's observation; but this only indicates that we are trying to find a way into a new field of enquiry, and the brightness of this sketch, as well as its effort to avoid savage prejudice, is certainly commendable.

H. J. FLEURE.

Antiquity

A Quarterly Review of Archæology

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Editorial Notes

THE first number of ANTIQUITY has been welcomed with very lively interest, and an enthusiasm which is most gratifying. It is difficult to express our appreciation without using language which might seem insincere or stereotyped, but it is evident that the aims of our REVIEW meet with general approval. We wish once and for all to thank those who (in all parts of the World) by their support have helped to launch ANTIQUITY; those who have made it known to their friends; and those who have so kindly written to express their satisfaction with the first number. So numerous were these letters that it was impossible even to acknowledge them individually, and we take this opportunity of doing so generally. They have been an inspiration to continue, and to improve.

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Many useful suggestions have been made; whenever possible we shall act upon them. We have, for example, been promised an article on recent discoveries of classic statuary which will be written by Professor Beasley, of Oxford. An attempt will also be made to give a chronological table of the prehistoric periods, in correlation with the earliest dynasties of Egypt and Mesopotamia. Both these subjects were mentioned by readers. We welcome such suggestions, and so

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far as possible will endeavour to carry them into effect, for it is part of the Editor's job to plague his friends with requests and reminders until a coveted manuscript is actually in his hands.

Chronology is a matter of fundamental importance. Until a reliable chronology has been established, orderly knowledge of the past cannot be said to exist. It may be relative or absolute. A relative chronology may be determined by the excavation of a well stratified site, showing changing forms of pottery and implements. But it cannot become absolute, that is, dated in years, until it can be connected with the civilizations of Egypt or Mesopotamia or, in later times, of Greece and Rome. All attempts to give a date in years to the prehistoric periods of Europe are based ultimately upon Egypt or Mesopotamia. The dating of the Minoan periods of Crete is based upon Egypt; it has been made possible only by the discovery in each country of imported objects which can be dated. Back to 2000 B.C. all authorities accept the same chronological system for Egypt, and the reign of most of the kings is known to within a year or two. Before that date, however, two systems are in use, that of the German school led by Dr Edouard Meyer (called the Shorter Chronology) and that of Sir Flinders Petrie (called the Longer Chronology).

The chronology of Mesopotamia is more difficult. Lists of rulers, with the length of their reigns, exist on cuneiform tablets; but there were many city states, each with its own dynasty, and some were contemporary. A new method of enquiry (first used by Father Kugler) is at this moment being followed up by Professor Fotheringham, of Oxford; it is based upon astronomical observations of the planet Venus, made about 2000 B.C. From this line of research a very definite fixed chronology may be expected. By means of "dead reckoning" backwards, the actual years during which the earlier kings reigned may be determined; but of course such reckoning becomes less reliable the further back it is carried. The latest results attained have been published by Dr Langdon in the Oxford Editions of Cuneiform texts, vol. II (Oxford University Press, 1923).

EDITORIAL NOTES

As everyone knows, remarkable new discoveries have been made at Kish and Ur by the British and American expeditions excavating there. New vistas have been opened up into the remote past, and valuable chronological evidence obtained. Here lies buried the oldest civilization in the World. Mesopotamia was an ancient country even in the days of Abraham, and we inherit many of its achievements. Dr H. R. Hall, who, before he succeeded Sir Ernest Budge at the British Museum, conducted excavations himself at 'Ubayd, has promised to review these results in a forthcoming number.



We hope to receive in time for the September number an account of the most recent excavations in the Indus Valley, where Sir John Marshall has discovered inscriptions in an unknown language with Sumerian affinities. This will be based upon a report which Sir John himself has kindly promised to send and which will be published in India about the same time. Dr Einar Gjerstad has promised news about his forthcoming excavations in Cyprus. The next number will also contain several good examples of air-photographs to illustrate a paper by Dr Cecil Curwen on ancient British agriculture. Such illustrations are used in this issue for the article by Flight-Lieutenant Maitland on ancient forts and stone walls in Arabia.



Signor Mussolini deserves the gratitude of the whole civilized world for his magnificent schemes of excavation. The "treasure-ships" of Nemi are to be recovered, Herculaneum is to be excavated, and the heart of Ancient Rome itself laid bare. The expense is to be borne by the Italian Government. Nothing but good can come of public-spirited work like this. If we may make a suggestion it would be that an illustrated report on the results of each undertaking should be published, say annually, in a special journal created for the purpose. Such summary publication would cost nothing, for it would have an enormous sale; it would be free from all taint of sensationalism; and it would be more rapid and more effective than publication in inaccessible learned transactions, which might be reserved for fuller and more detailed studies.

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It may perhaps be thought ungracious to expect more, when so much is promised ; but we cannot refrain from remarking that there is a great field for archaeological air-photography in Italy and Tripoli. So far as we know but little has been done in this direction as yet in either country. Vertical photographs of ancient ruins in Tripoli would surely be possible ; and it would seem that, if the water is clear enough, the submerged ruins in the Bay of Naples would reward photography from above. In comparison with the other projects such undertakings would cost practically nothing. They could probably be taken by naval and military airmen in the ordinary routine of practice.

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The disfigurement of rural England proceeds apace. Those who are too ignorant or too stupid to discover for themselves " local features of interest," such as John Bunyan's cottage and the " interesting old church " at Elstow, are to have their attention called to them by " artistic and very effective Road Signs in the finest Stoved Enamel." It is anticipated that one effect will be to make motoring in England " even more popular than it is to-day "—amongst motorists presumably, and inn-keepers. It is to be observed that nothing is said about calling attention to " local features of interest " which lie remote from villages—and hotels ; for which we are duly grateful. The local authorities who are to compose and purchase these road-signs may have knotty problems to solve. Supposing their church is old but not particularly interesting ? (The converse will seldom occur). Supposing the feature of greatest interest stands in private grounds ? We know of several which are hidden in gardens and cannot be seen without trespass. Will Stonehenge be advertised at Amesbury and will it be called a " Druidical Temple " or an " interesting old church " ? What is to be done when the monument is not in the village, but the village in the monument, as at Avebury ? A rich crop of " Roman " camps, " Danish " battlefields and " Druid's Altars " may be expected. There is unconscious humour in the claim that a road sign directing attention to an ancient monument which may well have lasted for 4000 years, " should last in the open for at least ten years." The honours are shared between the *Daily Mail*, The Royal Automobile Club, and Mr E. J. Burrow, whose name and address appear on each sign.

Where did Man Originate?

by E. A. HOOTON, PH.D., B.LITT.

STUDENTS of human origins agree that man was not separately created, but evolved in the remote past from an apelike ancestor. To such as reject the evidence of man's emergence from a lower animal form, the place of his original home is not a subject for discussion but rather a tenet of faith, or a simple geographical identification of the Garden of Eden.

Even if one is uninfluenced by ecclesiastical tradition it is difficult to avoid prejudice in the search for the cradle of humanity. The *ex oriente lux* hypothesis, which Reinach once so vigorously contested in the field of archaeology, numbers among its submissive acceptants a majority perhaps of anthropologists and students of primate evolution. Much of human culture and many peoples have come out of Asia. Because of the antiquity of its civilizations, the multifariousness of its inhabitants and its vast extent and physical diversity, that continent has become a natural residuary legatee for all unknown origins. The paucity of knowledge concerning the archaeology and palaeontology of Asia has determined its selection as the mute scapegoat of all our original sins.

Some scientists display a local patriotism which leads to a partisan attitude in the matter of selecting the *officina gentium*. A distinguished anatomist, sojourning in Egypt during the plastic period of his archaeological experience, is so impressed with the antiquity of civilization in the Nile Valley that he interprets cultural phenomena throughout the ancient world in terms of Egyptian borrowings. A well-known Latin-American palaeontologist, working in the Argentine, enthuses over the possibilities of the pampas formations to such an extent that he causes a fossil monkey to evolve into a *Homunculus patagonicus*, and creates from an Indian atlas-bone and the femur of a fossil cat the common ancestor of all existing men.

There are several fields of research from which evidence may be brought to bear upon the problem of man's beginnings. Palaeontology and geology provide information as to the distribution of fossil members

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of the Primate Order, an animal group which includes the lowly lemurs and tarsiers as well as the monkeys of the New World and the Old World, the anthropoid apes and man. The earliest fossil forms of primates are found in the first period of the Tertiary Epoch, the Eocene. These consist exclusively of lemuroids and tarsioids. The absence of higher primate forms indicates the futility of looking for man. In the next period of the Tertiary, the Oligocene, a small and generalized anthropoid ape, *Propliopithecus*, has been found in the deposits of the Egyptian Fayum. This fossil ape is generally admitted to fulfil most of the theoretical requirements for the common ancestor of man and the anthropoid apes. In the Miocene period early forms of the gibbon, the small anthropoid ape, occur in Europe, Asia, and Africa, as well as generalized forms of larger anthropoid apes which show characteristics intermediate between the chimpanzee and the gorilla. Fossil orang-utans are found in the deposits of the Upper Miocene period in the Siwalik Hills of northern India. Man is thought to have become a terrestrial biped animal during the Miocene period. It is perhaps reasonable to delimit the human stage by the assumption of the erect posture and the change from an arboreal to a terrestrial habitat. Yet the ancestral human stock had probably diverged from the closely related stem of the great anthropoids long before our protohuman ancestors abandoned the trees and took to the ground. In the Pliocene period which precedes the Glacial Epoch, fossil anthropoid apes are found in Europe, Asia, and Africa but skeletal remains of man have not yet come to light. In the Glacial Epoch human precursors, which preserve in their skeletal remains many resemblances to the anthropoid apes, have been discovered in Europe, Africa, and the Indo-Malayan archipelago. Essentially modern forms of man appear in Europe in the latter part of the Glacial Epoch, and possibly much earlier. It is fairly certain that every existing variety of man, with the exception of certain recent hybrid types, was fully evolved at the beginning of the recent period, perhaps 25,000 years ago.

It should be apparent that a knowledge of the evolution of the primates, as revealed by discoveries of fossil forms, is a prerequisite for any serious consideration of the question of man's original home. A detailed examination of the evolutionary rank and geographical distribution of prehuman and protohuman ancestors affords one sound method of attacking this problem.

Prehistoric archaeology includes the identification of the earliest cultural remains of man. Our ancestors began to utilize and fabricate

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tools as soon as they attained a human status. Even the modern anthropoid apes fall little short of the tool-using stage. It is evident that the distribution of man's earliest artifacts should contribute toward the solution of the problem of his original home. Since stone implements are much less destructible than skeletal remains, it is logical to infer that more abundant evidence of man's early distribution will be afforded by this class of data than by actual finds of the skeletal remains of the earliest men. There are, however, several serious difficulties in the interpretation of such evidence. The recognition of the crudest stone implements made by man is almost impossible, so little do they differ from forms produced by purely natural and fortuitous processes. When easily recognizable and definitely formed implements occur in geological deposits, the time of man's origin is already remote. Moreover, backward peoples have continued to make and use the rudest of stone tools and weapons down to modern times, and, in the frequent absence of geological stratification, it is excessively difficult to distinguish between these modern survivals of primitive industry and those which by reason of their geological antiquity afford data bearing upon the original home of man.

The study of the ancient civilizations, such as those of Egypt and Mesopotamia, can throw little light upon the problem of the birthplace of man. The complexity of a civilization is no true measure of its antiquity. It would be ridiculous to infer that house-building originated in New York City because the highest skyscrapers are found on Manhattan Island. Man migrates and carries his culture with him and the spots most favourable for the development of an intricate civilization are not necessarily the probable centres of human evolution.

It does not seem that myth, legend, and historical tradition can furnish certain clues to assist us in the search for man's birthplace. Our ancestors must have become human animals long before they were capable of transmitting orally their vague and irrational speculations as to the manner and place of their origin. Our earliest traditions which have any historical basis can scarcely carry us back more than 8,000 years, whereas the age of man as an erect biped is probably not less than 800,000 years. The Greeks of 500 B.C. had almost completely forgotten the parent Minoan civilization, which was in its late bloom a thousand years earlier. It is quite futile to capitalize the ignorance of the ancients in the quest for human origins and the cradle of mankind.

Atlantis and Lemuria and other mythical sunken continents still

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engage the attention of the few ill-equipped antiquaries who prefer to deal with geological impossibilities and anthropological absurdities, rather than to devote their efforts to the more profitable task of studying the distribution of man and culture in existing land masses. I am unaware of any competent palaeogeographer or geologist who admits the existence of any such submerged continent within the limits of the period of humanoid development in the higher primates.

A consideration by continents of the evidence of primate palaeontology, of prehistoric archaeology, and of the modern distribution of men and higher primates, should at least restrict the limits of our search.

Australia is remarkable for the absence of mammals, with the exception of bats and rodents. It is the home of the lowly Monotremata and of the marsupials. The complete absence of primates, fossil or recent, from this continent and from New Guinea and the islands of Polynesia, eliminate this area from any serious consideration as the birthplace of man. The native inhabitants of Australia and Tasmania are physically somewhat archaic, and culturally well below the neolithic level. It seems probable, however, that man was a geologically recent immigrant into this area. The Talgai skull, recently found in Queensland, seems to represent a rather primitive type ancestral to that of the modern Australian, and may possibly date from the Pleistocene epoch. On the whole, the absence of primates and the lack of evidence of the existence of early cultures seems to eliminate the Australian region from further consideration.

The New World has yielded many of the earliest fossil forms of the primates. In the Palaeocene deposits of the southwestern United States have been found remains of primate-like insectivores which were probably remotely related to the primates and more closely to existing tree-shrews. In the lower Eocene there appear very primitive lemuroids, the Notharctidae, which increased in size throughout the period and may have been the ancestors of the present American monkeys. In the Eocene deposits of Wyoming are also found early tarsioids which with the lemuroids constitute the lowlier groups of the primate order. The Miocene deposits of Patagonia have yielded a few fossil forms of platyrrhine monkeys, one of them the notorious *Homunculus patagonicus*, from which Ameghino proposed to derive man. It seems probable that the American platyrrhine monkeys and the marmosets were derived from primitive primates with tarsioid skulls and that this process of evolution took place in the New World.

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Certain specializations of the platyrrhine monkeys clearly exclude them from ancestry of the higher Old World primates and from that of man. The record of fossil primates in the New World ends with Miocene, with the exception of the find of two isolated teeth from a mid-Pliocene deposit of Nebraska. Professor Henry Fairfield Osborn and Dr William K. Gregory of the American Museum of Natural History have identified these much worn and fragmentary molar teeth as those of a new type of anthropoid ape, *Hesperopithecus*. This identification is, however, contested by certain European palaeontologists and further evidence will be necessary before the existence of anthropoid apes in the New World can be demonstrated. The absence of any convincing evidence of the development of anthropoid apes and higher primates in the New World argues that the place of man's origin must be sought elsewhere.

The study of archaeological remains of man in the New World renders even more improbable the hypothesis of an American origin of man. Up to the present time it has not been possible to establish beyond a reasonable doubt the existence of man in America during the glacial period. There is, indeed, no valid reason why man could not have reached the New World from Asia in the last interglacial period. But the river gravels of glacial age in America have yielded no such series of incontestably human artifacts as are found in the Old World. A considerable number of human skeletons or skeletal fragments have been attributed to the Pleistocene, because of their alleged occurrence in geologically ancient deposits or in association with the remains of extinct animals. None of these, unfortunately, has been found in unquestionable and wholly undisturbed Pleistocene deposits. There has always arisen doubt as to the age of the stratum, suspicion of an intrusive burial, or some other condition which prevents the recognition of the authenticity of the find. In no case have such skeletal remains exhibited anthropoid characters or features of morphological inferiority which would be expected to occur in very ancient forms of man. Thus, while the existence of man in the New World in late glacial times may be proved in the near future, it is highly improbable that evidence of the evolution of human forms from prehuman ancestors in the western hemisphere will ever be forthcoming.

Europe during the Eocene period seems to have enjoyed a tropical climate and its deposits have yielded abundant remains of fossil lemuroids and tarsoids, which in the opinion of Dr W. K. Gregory,

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one of the most notable students of primate palaeontology, are to be regarded as the probable ancestors of all of the higher Old World primates. In the Oligocene period no primate fossils have been found in Europe. In the succeeding Miocene period, which may have marked the development of man from an arboreal to a ground-dwelling erect-walking primate, representatives of ancestral forms of Old World monkeys and ancestral forms of anthropoid apes have been recovered from European deposits. The most important of the latter are the members of the genus *Dryopithecus*, a generalized form of anthropoid ape which may well have been a common ancestor of the gorilla, the chimpanzee, and man. Remains of *Dryopithecus* are also found in southern Asia and in north Africa. In the Pliocene period fossil anthropoid apes and monkeys are still found in Europe. In the latter part of this period early forms of man may have existed in Europe, but their skeletal remains have not yet been recovered. The European record of fossil primates is thus very rich. But it shows important lacunae in the Oligocene period when the common stem of man and the anthropoid apes was branching off the Old World trunk.

The importance of Europe as an early home of man is further obvious when one considers the findings of human palaeontology. Of the four most important specimens of early man or his immediate precursors, two have been found in the European continent. The Heidelberg jaw is an enormous apelike mandible, discovered at the depth of about eighty feet in the Mauer sand-pit, near Heidelberg, Germany. It belongs to the first or possibly the second interglacial interval of the Pleistocene. This massive chinless specimen contains obviously human teeth with very large pulp cavities which seem to indicate a herbivorous specialization not found in modern man but reappearing in the fossil Neanderthal race. Of equal importance is the Piltdown skull, *Eoanthropus dawsoni*, which was found in the plateau gravels of Sussex, England, under geological circumstances indicating mid-glacial age or earlier. The brain-case, except for the thickness of the bones, is quite modern in appearance, with a well developed frontal region and no massive brow-ridges. It must have contained a brain as large as that of the average Englishwoman of today. The skull is generally thought to be that of a female. With this modern-looking brain-case is associated an almost completely chimpanzee-like jaw, quite chinless and with projecting canine teeth such as had not been found in recent or ancient human types up to the time of this discovery. After a number of years of discussion, the

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finding of similar fragments of another specimen in the same deposit, but at a considerable distance from the first Piltdown discovery, seems to have convinced the majority of students that this early type of man had actually developed a modern form of brain-case, while retaining an anthropoid form of the jaws and teeth. The Heidelberg man and the Piltdown woman represent radically different forms, each demonstrating its humanity and its anthropoid reminiscences in quite different ways.

In the last interglacial period and during the last glacial advance the primitive Neanderthal race inhabited Europe, living, for the most part, in caves. A fair number of skeletons of these people have been discovered associated with their characteristic stone implements, which usually belong to the archaeological culture known as Mousterian. Neanderthal man retains many generalized ape features, but his human status cannot be denied. A flattened brain-case with low and receding forehead and massive eyebrow-ridges lodged a brain of ample size but of primitive pattern. The jaws and face are projecting and the chin is rudimentary. The teeth are massive, but human, displaying the enlarged pulp-cavities which occur in the Heidelberg jaw. Neanderthal man was short, with massive bones and a barrel-shaped chest. Most of the bones of the trunk and of the limbs show apelike features surviving in association with predominantly human characters. The bones of the foot show that it was a supporting organ, although anthropoid hints are not lacking. The posture must have been erect and the gait biped. It is the opinion of some of the best authorities that Neanderthal man represents a later development of the Heidelberg precursor and because of certain specializations cannot be reckoned as a direct ascendant of modern man.

At the end of the glacial period Neanderthal man was succeeded in the occupancy of the caves of western Europe by modern-looking long-headed types of man whose skeletons display no more simian features than do those of many recent men. These late glacial men, who seem to have developed the archaeological cultures of the Upper Palaeolithic, are generally supposed to have entered Europe from Africa. Sir Arthur Keith has maintained for many years, confidently at first, but of late somewhat feebly, the opinion that the modern type of man arrived in England early in the Glacial Epoch and possibly even in the late Tertiary. Certainly a number of skeletons have been found in England and elsewhere in Europe, which, although modern in appearance, have been disinterred from gravel deposits apparently

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of early Pleistocene date. Unfortunately, in no single instance has the early glacial provenance of any one of these skeletons been established to the satisfaction of the majority of geologists and palaeontologists. Neanderthal man is conspicuous by his absence in England, although abundant pre-Neanderthaloid or pre-Mousterian stone implements occur in the terrace gravels of the English rivers.

The archaeological evidence of man's antiquity in Europe is more extensive and complete than for any other continent. This may be, in a measure, a result of the more extensive archaeological work which has been carried on in Europe as contrasted with Asia and Africa, where comparatively little has been done. After years of persistence in the face of a generally prevailing scepticism on the part of pre-historians, Mr Reid Moir has succeeded in convincing many of the most competent authorities on the stone-working of early man that certain flints which occur in the Upper Pliocene deposits of East Anglia, and particularly at the 16-foot level in the Foxhall gravel pit, are humanly-made. Even those who still dispute these findings are forced to admit that typologically recognizable flint implements are not confined to the river gravels of the last interglacial period, but occur in deposits dating from the very beginning of the Glacial Epoch. It seems to follow from the archaeological data that man, as a tool-using animal, inhabited western Europe at least as early as the beginning of the Quaternary and very probably in the closing millennia of the Tertiary Epoch.

The foregoing summary of the European evidence makes it apparent that we cannot pass over casually the claims of this continent for consideration as the original home of man. From a zoogeographical standpoint, however, Europe is usually considered either as an extension of the northern Asiatic area or of the north African area. This does not necessarily imply that European fauna have all been derived from one or the other adjacent continents. The Barbary apes, found on the Rock of Gibraltar, are the only primates now inhabiting Europe, and these with the identical species found in Morocco and Algeria are allied to the Asiatic macaques rather than to the African monkeys. Comparatively few genera and species of mammalia are peculiar to Europe, but of all the regions of the Palae-arctic,—an extensive zoogeographical area including all of temperate Europe and Asia, and North Africa as far south as the Tropic of Cancer—Europe can show the most convincing record of fossil primates, the richest remains of fossil man, and the most varied and extensive and

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earliest archaeological cultures. It does not include, however, the tropical forest area to which the anthropoid apes are confined in their present day distribution.

The strip of Africa which borders the Mediterranean and extends southward to the Tropic of Cancer is zoögeographically more European than African. South of this Mediterranean zone is the Ethiopian region, including all the rest of the continent and the neighbouring island of Madagascar. The palaeontology of Africa, with the exception of its Mediterranean zone, is but little known and the Eocene deposits have not yielded lemuroids, although there is little doubt that these lowly primates ranged over the Ethiopian region in that period. In the Oligocene period there are found in the dried-up lake bed of the Fayum of northern Egypt the earliest representatives of the Old World monkeys and *Propliopithecus*, the ancestral form of all anthropoid apes and probably also of man. During the Miocene period there occur in the Moghara beds of northern Egypt a fossil form of gibbon and a species of *Dryopithecus*, that large generalized anthropoid which may have given rise to gorilla, chimpanzee, and man. In the succeeding Pliocene period fossil remains of monkeys akin to the present day baboons, macaques, and other catarrhines, have come to light in North Africa and in the area south of the tropical forest. A form of anthropoid ape has recently been discovered at Taungs, Bechuanaland, in deposits which may be of Pliocene date. This specimen, which has been named *Australopithecus africanus*, displays, according to some writers, affinities with gorilla and chimpanzee. At any rate it demonstrates the presence in the Ethiopian area of a hitherto unknown type of anthropoid ape belonging to a geologically ancient horizon.

Fossil man in Africa is represented by one early human type of immense importance and by several finds of modern types of man which may be of geological antiquity. The skull of Rhodesian man, found in the Broken Hill mine in northern Rhodesia in 1921, is characterized by an enormous face with brow-ridges surpassed only by those of the male gorilla. The forehead is narrow and low; the brain-case is elongated and narrow and must have lodged a rather small brain. The face combines anthropoid ape and human features. The palate is the largest ever found in man, but contains teeth modern in form and badly diseased. The limb-bones associated with the skull are modern in appearance. Sir Arthur Keith regards Rhodesian man as an early offshoot from the common human stem which gave rise to both Neanderthal man and all modern varieties of man. It is his opinion,

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however, that the Rhodesian specimen is a twig of the modern branch springing off a little above the Neanderthal-Homo sapiens fork. The geological age of the Rhodesian specimen is dubious; it may be Pleistocene but hardly earlier. It is quite certain that remains of ancient types of man are fairly abundant in the Ethiopian area and have only to be discovered.

Archaeological evidences of an early occupation of the African continent by man are probably not less numerous than those of Europe, although they have not received the same intensive study. In the north African area are found sequences of palaeolithic implements of similar types and probably of equal antiquity with the Lower Palaeolithic cultures of Europe. In several sites of northwest Africa there are stratigraphic sequences of implements which may be equated approximately with the Chellean and Acheulean industries in point of time and in typology. In the Nile Valley and the surrounding parts of the high desert early palaeolithic flint implements occur in abundance, but mostly under conditions which do not permit any determination of their geological date. In the Horn of Africa and in South Africa similar artifacts are found in the river gravels. In the absence of any exact knowledge as to the geological and palaeontological sequences in South Africa, it is difficult to assign a date to most of these discoveries. While there is reason for believing that palaeolithic industries survived in South Africa longer than they did in Europe, there is no doubt that the occupation of the Ethiopian region by man stretches far back into geological antiquity.

The present day distribution of primates in Africa argues most impressively its case as the home of the order. Nearly one-half of the existing species of lemuroids (forty-six species and sub-species) including one distinctive family and eleven genera, are restricted to Madagascar. On the African mainland are forty-one species and sub-species representing four genera.¹ Thus there are eighty-seven species and sub-species of lemuroids in the Ethiopian area as contrasted with eighteen species found in southeastern Asia and the islands of the East Indian Archipelago which constitute the Oriental zoögeographical region. Tarsioids are not found in the Ethiopian area. Of the *Cercopithecidae* or Old World tailed monkeys, the baboons are almost wholly confined to the African area, and the macaques, except for the

¹ Davidson Black : *Asia and the Dispersal of the Primates* ; Bulletin of the Geological Society of China, vol. IV, no.2, p. 141, Peking, 1925.

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Barbary apes, to the Oriental area. The thumbless monkeys of the group called *Semnopithecinae* are abundantly represented in both the Ethiopian and the Oriental regions. Africa is the home of the most manlike of the great anthropoid apes, the chimpanzee and the gorilla, while the small gibbon and the greatly specialized orang-utan are restricted in their range to the Oriental region. Africa, as a whole, including the Mediterranean strip, presents the most impressive array of present day higher primates and survivals of the lowliest forms of the order ; it has yielded the earliest fossil forms of catarrhine monkeys and anthropoid apes, and it shares in the possession of those fossil apes of the genus *Dryopithecus* which are supposed to stand closest to the common ancestor of man and the *Simiidae* ; it abounds in archaeological finds of the earliest types of man's artifacts ; it has yielded a fossil skull which in some respects is more anthropoid than *Pithecanthropus erectus*, while in others it displays modern human characteristics ; it is the home of three negroid varieties of man and at least one white race. Africa's claim to be the mother of primates and of man cannot easily be refuted.

Asia falls into two zoögeographical areas, one of which is a part of the Palaearctic region and is continuous with Europe. This area includes most of Asia Minor, Siberia, the Tibetan plateau, Mongolia and the plains of north China together with Japan. The Oriental region consists of India, Indo-China and the Indo-Malayan archipelago with the exception of Celebes, which belongs with the Australian region. The Palaearctic portions of Asia have shown, up to the present, very little in the way of evidence of ancient occupation by the primates and by ancient man. Their deposits, are, however, almost unexplored. The only fossil lemuroid hitherto reported from this area is a lemuroid-insectivore discovered by Dr J. G. Andersson in the Eocene deposits of the southern Shansi. The palaeontologists of the American Museum of Natural History confidently expect to discover ancestral fossil lemuroids in the Eocene of Mongolia, but at the present writing none has yet been reported. From Ertemte in inner Mongolia Dr Andersson is said to have recovered the remains of a fossil gibbon, the first and only anthropoid ape found in northeastern Asia. The fossil record of primates in this area is therefore extremely scanty, although subsequent explorations undoubtedly will reveal new forms.

Archaeologically central Asia has not yet revealed conclusive evidence of the geological antiquity of man within its borders. In Asia Minor, Syria, and Mesopotamia implements of the Lower

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Palaeolithic type have been found, and a Neanderthaloid skull fragment has recently been recovered from a site on the shores of Lake Galilee. Stations dating from the Mousterian or Lower Aurignacian period are reported from the loess formation of Shensi by Father Teilhard de Chardin. The implements are said to be associated with a distinctly Quaternary fauna. On the eastern frontier of Thibet, at a depth of 60 metres in a gorge of a tributary of the Hwang-Ho, fossil remains of six human skeletons have been found by Fathers Licent and Teilhard de Chardin. These were associated with animal bones and crude stone implements. Implements possibly as old as the European Azilian, which marks the transition from the Palaeolithic to the Neolithic, have been discovered in Mongolia by the members of the Third Asiatic Expedition of the American Museum of Natural History. Several stations in Siberia have yielded evidence of the Magdalenian culture which flourished in the last phases of the final glacial retreat.

On the whole there is little in the evidence thus far accumulated in Palaearctic Asia to indicate either that it was an important centre of primate development or that it was occupied in very ancient times by man. The migration across this region to America of the ancestors of the present American Indians cannot be proved, from the available American evidence, to be anything but recent.

The Oriental region, comprising southeastern Asia and the East Indian archipelago, offers, on the other hand, a much more promising fossil and archaeological record. No fossil lemuroids or tarsoids have yet been found in this area, although it is altogether probable that these early forms of the primates existed here in Eocene times. Nor have any Oligocene primates been found. It is not until the Upper Miocene period that fossil primates occur in this area. But these include a rich variety of anthropoid forms. The Siwalik Hills of northern India have yielded teeth and fragments of jaws of three genera and four species of anthropoid apes. These include from the Upper Miocene beds two species of *Dryopithecus*, *Palaeosimia* a supposed ancestor of the orang-utan, and *Sivapithecus*, a genus regarded by Dr Gregory as an early offshoot from the *Dryopithecus* stem which also may have given rise to man. The Upper Miocene deposits of the Siwalik Hills have also produced a gigantic form of *Dryopithecus*. The Lower Pliocene deposits include *Palaeopithecus*, an anthropoid regarded by Gregory as an ancestor of the gorilla. The Upper Pliocene deposits have yielded fossil remains of an orang and several species of

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macaques, baboons and semnopithecues. The mere enumeration of this list of fossil anthropoids demonstrates the great importance of northern India during the crucial period of primate evolution within which the great anthropoids and man were being differentiated into their present forms.

The Oriental region has given up the single specimen of greatest importance to the study of human evolution, *Pithecanthropus erectus*. This fossil, found in Java, near Trinil, under geological circumstances indicating an early Pleistocene date, is intermediate between an anthropoid and a human status. The skull-cap is small and dolichocephalic, with apelike supraorbital crests and a low and receding frontal bone. It looks very much like that of a gigantic gibbon. The cubical contents of the brain-case are estimated at 900 cc., a capacity which is below the limit of normal individual variation. A fragment of the lower jaw indicates that the canine teeth were not projecting and that the chin region had a rudimentary human conformation. Three teeth associated with the specimen are principally human in character. A thigh-bone, which is presumed to have belonged to the same individual, is essentially similar to that of modern man and by its muscular markings clearly indicates that its possessor had assumed the erect posture and biped gait. If the attribution of these different fragments to one individual is correct, as seems to be the opinion of the majority of authorities, *Pithecanthropus erectus* was either a form truly intermediate between man and the ancestral anthropoids, or an early offshoot from the humanoid stem which survived to a relatively late period.

Professor Eugene Dubois, the discoverer of *Pithecanthropus erectus*, has recently revealed that in 1890, prior to the Trinil find, he recovered two fossil crania from a deposit near Wadjak, Java, of probably Pleistocene age. These Wadjak skulls are capacious as to brain-case, but otherwise recall the crania of modern Australians. They are regarded by Dr Dubois as ancestors of the present Australians, who may have reached their island continent in the Pleistocene epoch.

Implements of Lower Palaeolithic types have been found in the valleys of the Ganges, Indus and Narbada, and of southern India in various sites. Although our knowledge of the earliest archaeological remains in the Oriental region is very scanty there seems to be no good reason for doubting the great antiquity of man in this area.

From the foregoing summary it is clear that the Oriental region of the Asiatic area affords numerous indications of being one of the most

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important centres of higher primate and human evolution. If the presence of ancestral and recent forms of anthropoids, the occurrence of protohuman fossils, and the development of early types of stone-work may be taken as relevant evidence, there is no other area except Africa which can offer equally strong claims to designation as the place of human origin. The anthropoid apes which find their home in the Oriental region to-day are the small gibbon which occurs in most parts of the area, and the orang-utan which is confined to Borneo and Sumatra. The gibbon is in many respects the most primitive of the anthropoids, although in some characters highly specialized. The orang is narrowly adapted for arboreal life and shows certain degenerative features.

There are two fundamental questions, the answers to which largely determine the interpretation of the available evidence as to the origin and birthplace of man. The first pertains to the nature of human evolution and of organic evolution in general. Are we to regard human evolution as an essentially unilinear process, operative exclusively in a single area or in a few areas, or is it rather to be regarded as a universal process which works continuously but variously, sometimes rapidly, sometimes slowly, upon all organisms at all times, in whatever environment they may find themselves? It seems to me that there can be but one answer to this question. Evolution is a multiple universal process and not a single unilocal miracle. Sometimes it proceeds apace and sometimes it lags; its rapidity and direction are determined by the potentialities of the organisms upon which it operates and by the requisites of the environments through which it operates. Any evolutionary product is the resultant of multiple and complex environmental and hereditary forces. Through the very multiplicity and complexity of these interacting forces and tendencies, evolutionary forms may vary somewhat after the pattern of a chance distribution. But chance variations are multiple, not single; they recur in accordance with the laws of probability. Given a primitive lemuroid-insective group of multiple origin and spread out over a wide geographical area, evolution must operate upon all members of this group in whatever environment they may find themselves. In some cases where an environment equilibrium is maintained in that the original habitat is preserved unaltered and the individual animals remain within it, evolutionary changes may be at a minimum. In other cases conservatism of the animal may cause it to seek out an environmental equivalent where it may survive with the least possible modification. But most animal forms evolve.

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In the Miocene period generalized anthropoid forms are found in widely separated areas of the Old World. Some of these fossil anthropoids may have been the ascendants of man. It is reasonable to suppose that the anthropoid ancestors of man were distributed over an area conterminous with that which the ancestors of the present anthropoid apes ranged or, at any rate, equally large. These proto-human ancestors may then have attained the human status in more than one place. To the present writer this conclusion seems inevitable. Nevertheless, when one expounds a scientific heresy for the benefit of lay readers, he should in fairness make clear to them that the opinion offered is not generally accepted. Many or most students of human evolution adhere to a sort of Darwinic monogenism which would derive man, whatever his variation in present form, from a primaevial pair of anthropoid precursors who ate of the fruit of knowledge in a single zoölogical Garden of Eden. Such a view disregards all fossil and recent evidence. Four distinct genera of anthropoid apes have survived to the present, all of them derived from the same generalized ancestors, probably no longer ago than the Miocene period. The common human stem must also have sent off various branches as early as the Miocene and in more than one region. Fossil forms of man are distributed from Rhodesia in the south to England in the north and to Java in the east. *Pithecanthropus erectus*, *Eoanthropus dawsoni*, *Homo heidelbergensis* and *Homo rhodesiensis* are so profoundly dissimilar in their morphology that it is hardly conceivable that any one of them could be a direct ascendant or descendant of any other. Some of them retain completely anthropoid features in some parts of the body while having attained an essentially human status in other characters. But these asymmetries are not found to be identical in the various fossil men hitherto unearthed. *Pithecanthropus* has a small gibbonoid brain-case with great brow-ridges and a low forehead, but his canine teeth, according to latest accounts, were not projecting and his chin was not simian. *Eoanthropus* had a large brain and a high-brow with small supraorbital ridges, but her jaw is chimpanzee-like, chinless and with protruding canines. Her German contemporary, or approximate contemporary, had a massive bestial mandible in which were implanted altogether human teeth which hint at cud-chewing proclivities. The Rhodesian savage of the Broken Hill mine had supraorbital ridges which would do credit to a male gorilla, vast jaws containing degenerate teeth which would shock a dentist, and a completely modern poise of the head and conformation of limb-bones. These fossil forms of man

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can be fitted to the Procrustean bed of unilinear evolution only by dismembering them and assigning the misfitting parts to hypothetical attendant anthropoid apes, presumably their constant companions. Many scientists would have us believe that ancient man was so closely associated with contemporaneous great apes in life that in death they were not divided, or, that, if they were divided in death, complementary parts of each were shuffled together in the same stratum. But no such legerdemain on the part of Nature can account for the human teeth in the apelike Heidelberg jaw or the gorilloid brow-ridges surmounting the human nose of Rhodesian man.

Why not admit that Nature tried a number of experiments in developing anthropoid forms in a humanoid direction ; that these experiments were conducted simultaneously in several parts of the world upon similar generalized anthropoid stocks ; that some of them were more successful than others, and that some of the early and crude attempts resulted in protohuman types which have become extinct ? Nor is it necessary to infer that all modern types were produced in the same region. Given the same generalized prehuman anthropoid stock, convergent evolution is sufficient to account for the resemblance in detail that obtains between the most diverse human races of the present day, but environmental modifications in recent times are insufficient to explain the differences. I am not attempting to argue that different forms of man have been derived from the various existing anthropoid apes, but only that the common humanoid stem must have split up into diverse shoots in different regions of the world at about the same time that the present great anthropoid apes were being evolved into their separate genera.

The second question bearing upon the interpretation of the evidence as to the place of man's evolution from an anthropoid to a human state, has to do with so-called principles of animal dispersion. Dr W. D. Matthew, a distinguished palaeontologist, has enunciated² the following principles : —

“ Whatever agencies may be assigned as the cause of evolution in a race, it should be at first most progressive at its point of original dispersal, and it will continue this progress at that point in response to whatever stimulus originally caused it and spread out in successive waves of migration each wave a stage higher than the

² W. D. Matthew, *Climate and Evolution*, Annals of the New York Academy of Science, vol. xxiv, pp. 171-318. Quoted from Davidson Black, *op. cit.* p. 141.

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preceding one. At any one time therefore, the most advanced stages should be nearest the centre of dispersal, the most conservative stages the farthest from it ". . . .

This statement involves the assumption that physical environments inevitably migrate and that more conservative animals follow these environments, remaining immobile in an evolutionary sense, or relatively immobile. It seems to imply also that evolutionary forces operate only upon animals which have remained at the spot in which they originated and that these evolutionary forces act principally or exclusively through changes of the physical environment. The adoption of such a principle would necessitate the conclusion that the places where one finds primitive existing forms of any order of animal are exactly the places where these animals could not have originated. Therefore the presence of modern lemuroids in the Oriental and Ethiopian regions indicates that lemuroids did not evolve in these areas but are refugees from somewhere else. The finds of fossil lemuroids in Europe and North America argue in favour of some non-European and non-American place of origin, and the occurrence of the remains of *Pithecanthropus* in Java excludes that part of the world from consideration as the cradle of humanoid types. But this is the principle of *lucus a non lucendo*, which pushed to its logical extreme would lead us to seek for the birthplace of man in that area where there are no traces of ancient man and none of any of his primate precursors. Thus in his stimulating article on "Asia and the Dispersal of the Primates" Professor Davidson Black argues that the presence in the Egyptian Fayum of *Parapithecus*, the earliest known catarrhine, and of *Propliopithecus*, the earliest anthropoid, indicates that the place of origin and centres of dispersion of these forms were remote from Egypt.³

But even if one grants to this principle a certain measure of probability, is it not necessary to suppose that some of the progressive members of a group might migrate from the original centre of dispersal and that some, at any rate, of the conservative members would die, so to speak, *in situ*? One supposes that the most "conservative" of an animal group are those which are least capable of adapting themselves to environmental changes, and that the ultra-conservatives are those who would succumb to any environmental change and die hard in the home ditch rather than follow their migrating climate. It is conceivable also that the most progressive animals are those who move

³ Davidson Black, *op. cit.* p. 148.

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into new environments rather than those who wait for new environments to move into them.

On the whole, it seems reasonable to look for the origin of man in those places where existing primates of low development and also those most closely related to man, are now at home ; where the most abundant palaeontological evidence of higher primate evolution is to be found and where the most archaic forms of man and the earliest evidence of his industries have been discovered. If one supposes that man's ancestor took to the ground and assumed the upright posture because of a deforestation of the area in which he lived, it is difficult to explain the presence of *Pithecanthropus erectus* in tropical Java in early Pleistocene times ; for *Pithecanthropus* seems to have been an anachronistic survival of an early humanoid form, and one would suppose that Pithecanthropic conservatism would have caused him to remain in the plains. Another difficulty is presented in the case of the gorilla, that notorious Tory who has taken to the ground in the midst of the tropical forest. It is the opinion of the writer that man's ancestors descended to the ground in their tropical forest homes and then walked out of those forests. It seems improbable that our anthropoid precursors waited for the trees to die under them. Those prehuman ancestors " took a chance " upon the ground, because the opportunities for food-getting seemed better on earth and because a tree is an inconvenient and disadvantageous habitat for a giant primate. If one weighs ten stone and lives in a tree, he is likely to be preoccupied with the task of keeping from falling off the tree. But our ancestor was like Zaccheus, in that he came down.

In the Lower and Middle Miocene periods generalized forms of anthropoid apes of the *Dryopithecus* genera extended from the Oriental region along the Mediterranean zone to Western Europe, and in Africa probably south to the farther margin of the forest zone. During the Upper Miocene period there is evidence that the temperature dropped and more or less desert conditions prevailed over the Iranian plateau and possibly a part of North Africa. The African anthropoids were cut off from their Oriental relatives. Some of the more progressive great apes took to the ground in Africa, others in the Oriental region of Asia, and possibly still others in Europe. There is, in the opinion of the writer, a complete lack of evidence in favour of a central Asiatic area of dispersal for the protohuman stocks. Humanoid forms may have developed also on the northern border of the tropical forests of the Oriental region, but there is nothing to prove that they did so develop.



THE ABBOT'S CHAIR, WOODHURST (HUNTS.)

Place-names and Archæology

by A. MAWER

THREE years ago, when the Survey of English Place-names was initiated, the present editor of *ANTIQUITY* wrote an article for the opening volume of the Survey publications with the above title. In it he attempted to show how fruitful might be the mutual relations of place-names and archaeological studies. The Survey is now well under way. It has completed its work in four counties—Buckinghamshire, Bedfordshire, Huntingdonshire and Worcestershire (shortly to be published) and the time seems not inappropriate to take stock of some of the results achieved in this particular field of studies.

One matter which is always of interest is to note the different terms used by our Anglo-Saxon forefathers for ancient earth-works, either of their own making or belonging to an earlier age. For these, two new terms have come to light. The first is found in the name of Totternhoe Castle (Beds.). This is an ancient camp standing on a promontory of the chalk downs to the west of Dunstable. Writing in ignorance of the meaning of the name, Mr A. R. Goddard in *Victoria County History of Bedfordshire* (i, 294), says 'the position is a majestic one, and to those moving on the lower plains for miles round, the Totternhoe mound seems to keep watch on its height like some great conning-tower.' As a matter of fact the name records these very facts. The suffix *hoe* is the place-name element, so common in Bedfordshire, meaning 'hill,' while the first part is a hitherto unrecognized Old English word *tot-ern*, 'look-out house,' in which *tot* is the same word which we have in so many *Toothills* up and down the country, while *ern* is the word which has given us place-names such as *Brewerne*, 'brew-house,' *Cowarne*, 'cow-house' and a good many others besides.¹

The other word is *weard-setl*. This is a known word in Old English, meaning literally 'watch-seat.' Already, in dealing with

¹ See further *Place-names of Bedfordshire and Huntingdonshire*, 139.

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certain Hampshire charters, Dr Grundy had shown that a place there called *weardsetl* must be the well-known Beacon Hill, recently brought to public notice as the burial-place of the late Earl of Carnarvon. Now in Worcestershire three examples of it have come to light, disguised as Warhill Top and Wassel Wood (really one name) in Kidderminster, Wassel Grove in Hagley, and Wast or West Hills (both forms are found) in Alvechurch. Wast Hills and Warhill are the commanding points in their districts and Wassel Grove stands on a prominent spur of the Clent Hills. The most interesting however of the three is Warhill, for here we have what the Ordnance Survey maps mark as a camp and what the *Victoria County History* (iv, 425) describes in greater detail as a 'small work . . . nearly rectangular (three-quarters of an acre), with a ditch on all sides but the north-west, where the inner scarp has been cut into.' Here then we have the OE *weard-setl* applied to a fortified enclosure and it would be interesting to find whether there are any such traces of earthworks on either of the other two sites. In the case of Wast Hills it is very doubtful, for the site is full of the 'waste' (hence the modern form of the name) which accrued when the canal-tunnel was excavated here. As a pendant to these 'ward-settles,' we might note *Wardhowe* in Washingley (Hunts.), now Ward Mount. This is another *hoe* from which watch was kept and it is worthy of note that it is on high ground and that on it there is an earthwork-site, of uncertain date and origin. (Cf. *Place-names of Bedfordshire and Huntingdonshire*, 201).

In the study of ancient roads, and more particularly of Roman roads, certain points of interest have come to light. First we may note that our forefathers, inadequately equipped though they were as archaeologists, made a happy distinction between the Icknield Way and the great Streets—Akeman, Ermine, Watling. The Fosse Way was in those days neither 'way' nor 'street'; this is probably due to the origin of the name as explained below. The Icknield Way is always called in early times a 'way,' never a 'street' and this is technically correct; for it is a well-established fact that the Icknield Way, in distinction from the others, which are Roman roads, is a British trackway. Then it has been shown that two of the streets took their names originally from quite short stretches of them: Watling Street from the stretch by Verulamium, the old *Watling-chester*, Ermine Street from the stretch of it which runs through *Armingford* Hundred in Cambridgeshire, both *Watling* (or more correctly *Wacling*) and *Arming* being insignificant tribal or folk-names; while Akeman

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Street seems to have been so called from its leading ultimately to *Akeman*-chester or Bath.

In studying these road-names it was found that they repeated themselves with somewhat baffling frequency in various parts of the country. Akeman Street is used of a Roman road from Cambridge to Littleport; Irmine Street, from the fourteenth century onwards, was used of the Roman road from Gloucester to Silchester, and has also been applied to part of the Stane Street. Dr A. H. Smith calls attention to a charter in the cartulary of St. John's, Pontefract, in which as early as *c.* 1300 the Great North Road near Allerton Bywater is called *Watlingstrete*. Watling Street was also applied in the 15th century to the road from Ferrybridge to Worksop, and is used also of the Roman Road from York to Corbridge and the Cheviots. Icknield was used already in the 13th century of a road called *Ikenildstret*, now Ryknild Street, a well-known ancient road in Worcestershire, the curious form Ryknild Street arising from popular corruption of 'at ther Ikenildstreet,' into 'atte Rikenild.' This extended use of the names of famous ancient roads cannot be entirely due to the inventive faculty of antiquaries for it began far too early for that. The true explanation is that in the Laws of William the Conqueror, the four roads Ermine Street, the Icknield Way, Watling Street and the Fosse Way were subject to a special peace safeguarded by heavy penalties, and doubtless other roads were not slow to adopt names which implied such high standing and privileges.

Akeman Street is also applied to a second road, as Professor Ekwall has pointed out, in a Westminster charter of Edward the Confessor, where it is used as the name of a road south of Watling Street (*i.e.* the present Oxford Street), and leading to Charing (*i.e.* Charing Cross). One can only suggest that this was a case of a second road, the beginning of the great western road, which ultimately led to *Akeman*-chester or Bath and was therefore called *Akeman-street*.

On the Fosse Way one small ray of light has been shed. It seems almost certain that this road must have been called *Fos* by the English from some British adaptation of the Roman *fossa*. The road was presumably so called from a prominent *fossa* or ditch on one or both sides of it at some point or points in its course. A trace of this seems to be found in the name *Ditchford*, given to the ford which carries the Fosse Way over Knee Brook in Blockley (Worcs.), and, as Dr Grundy has pointed out, in Ditchheat (Somerset) literally *ditch-yat*

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or *-gate*, which lies by the Fosse Way. Here the *Fosse* seems alternatively to be called the 'ditch.'

Another interesting compound of *dic* meaning 'ditch' or 'dyke' is a new word *Fastendich*, with the first element OE *faesten*, 'stronghold,' which, as Mr M. M. Hughes has shown, is used as a name for the well-known earth-work called Grim's Ditch, near Hampden (Buckinghamshire).

In collecting field-names some interesting examples of names of roads or tracks and of bridges have come to light. In Buckinghamshire we have *Ferdway*, 'fyrd or army road,' *Chepingwey*, 'market-road'; in Bedfordshire and Huntingdonshire we have *Thefwey*, *Dossereswey*, i.e. road used by one who carries his goods on a pannier or pack; *Flexwey*, *Riscweg*, *Bereweg*, roads which are apparently so called from the crops of flax, rushes and barley (or corn generally) which were carried along them; in Worcestershire we have *Syllweg*, i.e., road made of baulks or sills, *Gerdweg* 'yard-way' denoting perhaps a road whose course was marked by a series of rods or posts or the like, and *Sakereswey* 'robbers' road; while from Nottinghamshire we may note *Thefstighe*, 'thief-sty or path.' Of bridge-names we may note in Buckinghamshire *Omannebrugge* or 'one-man bridge,' and in Worcestershire *Standefast Brigge*, presumably one where stoppages were frequent; *Letherenbrugge* which seems to refer to a bridge in the construction of some part of which leather was used; *Eorthbrycg*, 'bridge of earth or turves'; *Bredenbridge*, 'bridge made of *brēdes* or planks'; and *Risenbridge*, *Risbridge* containing OE *hris*, 'brushwood' and *hrisen*, 'made of brushwood,' which must describe a brushwood causeway over some marshy place. *Blancheferye* in Fletton on the Nen gives an example of the word 'ferry' some 150 years earlier than any cited in the *Oxford English Dictionary* and points to an early use of a white ferry-boat of some kind across the river at this point. Coppingford in Huntingdonshire is 'merchants ford,' and its proximity to the old Bullock Road parallel to Ermine Street, calls attention to the importance of this early track-way.

One of the things upon which one is most anxious for further light is the heathenism of our forefathers, and here too the Survey has not been without results. One fertile source of information was discovered by Professor Ekwall when he noted that in certain place-names we have as the first element the OE *wig*, *weoh*, 'idol,' which may however have also had a wider sense and have been used like the cognate Norse *ve* of a sacred site, a temple. Such a sense is required

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to explain a name like *Cusanweoh* in Surrey, found in an OE charter as a place-name. It cannot mean 'Cusa's idol,' it can only mean 'Cusa's sacred site' or something of that kind. Whatever the precise sense, its use in place-names clearly belongs to Anglo-Saxon paganism. So far the names that have been noted in which this element is found are Weedon in Buckinghamshire and in Northamptonshire, Willey in Surrey, Weoley in Worcestershire.* It is probably not without significance that these heathen sites are either *duns*, *i.e.* hills, or *leahs*, *i.e.* forest-clearings. It may also be noted that Willey is not very far from the *Cusanweoh* mentioned above, or from Tuesley and Thundersley, which take their names from the old Saxon gods *Tiw* and *Thunor*. A new 'hill of Woden' has come to light in Wenslow in Bedfordshire. The site is unknown but it was somewhere in the neighbourhood of Biggleswade. *Harrow*-names have long been recognized as relics of heathendom, derived from OE *hearg*, 'heathen temple.' Arrowfield in Worcestershire, not very far from Weoley, is an additional example of these names, a place in *feld* or open country which happens to be by the river Arrow and therefore by a process of folk etymology has lost its proper initial *h*.

On names for heathen burial-sites, a little information has been found in the course of the Survey. Some years since Dr Bradley suggested that Hebburn on Tyne was derived from OE *heah* and *byrgen*, hence 'high burial-place.' This was supported in interesting fashion by the history of Burnhill in Stone in Buckinghamshire. Here the early forms suggested that we might have the same element and then it was discovered that there was an ancient barrow, explored by Mr Heneage Cox, containing skeletons belonging to the Early Iron Age or to the Anglo-Saxon period. Closely allied to names of this type are the numerous Churchills scattered up and down the country. It will be shown in the forthcoming volume upon Worcestershire that the great majority if not all of these Churchills have nothing to do with churches. They are really *Crich-hills* containing the common British word for a hill or barrow which has survived in Crich in Derbyshire, Crick in Northamptonshire, Crutch in Worcestershire. The name *Crichill* became, by a regular process of *r*-metathesis, *Kirchill*, and this, under the influence of the common word *church*, was soon corrupted to *Churchill*. This furnishes a clue to a whole

* [It is possible that Waden or Wedon Hill, overlooking Avebury in Wiltshire, should be added to the list.—Editor].

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series of English place-names and for many of them it will be necessary to have the help of the archaeologist to determine how far we have, in these names, to do with a natural hill and how far with some artificial barrow.

Another field in which the Survey has been able to make a little headway is in the discovery of some of the sites of the ancient meeting-places of the Hundred-courts and the like, and in noting some points of interest with regard to their names. In Buckinghamshire the exact site of the meeting-place of the Hundred of *Seglow* or *Seckloe* was fixed and it was shown that this name might well mean 'warriors' hill.' The Hundred of *Lamue* was shown, thanks to a suggestion of Professor Ekwall's, to contain the OE word *muga*, 'mow' or 'heap,' pointing to some artificial mound or other structure used to mark the meeting-place. The discovery, close to one another, of Skirmett and Fingest, the one a Scandinavianized form of OE *scir-mot*, 'shiremoot,' and the other a compound of the Anglo-Scandinavian *thing*, 'assembly' and *hurst*, 'wood' demonstrated the importance of the Scandinavian occupation of the county, gave an interesting pair of allied names, parallels to which have since been noted in Tingrith (Bedfordshire), really *thing-rithe* or stream, by the site of Manshead hundred meeting-place, and in the discovery in the North Riding of the names Landmoot, i.e. land-moot, and Fingay (i.e. *thing-how*) Hill close together. An even more striking group is that recently noted in Worcestershire. Clustered around Low Hill in White Ladies Aston, the 'low' from which the triple hundred of Oswaldslow takes its name, we have Spetchley or 'speech-clearing,' Stoulton, i.e. farm of or by the *stool* or official seat of the officer of the Hundred-court, and Swineshead, one of the meeting-places of the court. This last place adds another name to the list of the places which contain the suffix *head* combined with the name of some animal, and, as it was a Hundred-meeting-place, it definitely supports the theory advanced by Dr Bradley some years ago that these places were so called because a figure of the animal in question was set up at the place of meeting of the Hundred.

In Stoulton we have seen reference to the *stool* or seat of the official who presided over the Hundred-court. In dealing with the Hundred of Hurstingstone in Huntingdonshire an interesting discovery was made which throws some light on what such a stool may really have been. It was found that what in the old maps is called the *Hurstingstone* is what is now called the Abbot's Chair. (Plate). This was used by the abbot of Ramsey when presiding over the manorial

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court, where he doubtless sat as the direct successor of the old officer of the Hundred. The 'chair' is a large square stone in the shape of a chair, the stone itself belonging to the well-known Barnack Rag quarries in Northamptonshire. This would suggest that in some of the numerous Hundred-names which contain *stone* as the second element we may well have reference to the presiding officer's seat rather than to any kind of boundary stone such as has commonly been suggested.*

Such are a few of the results achieved from three years' work over four counties. Hitherto, and for a good many years to come, it is clear that it can only be a case of adding slowly to our stock of knowledge a number of small yet often highly significant facts. The time for generalizations is still far distant. The time may come when a skilful combination of place-name and archaeological studies may do much in enabling us to reconstruct the story of the English settlements in this country. For the present we must rest content with slowly piecing together the fragments of the body of Truth. Here much remains to be done, and it can only be done from a study of the new material which lies ready to our hand if only means and energy are forthcoming to work it. Nearly all of the discoveries here set forth are due to the study of MS material in early documents still unprinted. One can say without exaggeration that every new document studied, even down to the fifteenth century, yields matter of importance for the business in hand. The generosity of the British Academy has enabled a great deal of steady work to be done upon material of this kind, but there is room for endless extension of this work and none of it will be without its results. Work upon documents must however go hand in hand with topographical, and still more with archaeological, work upon the ground itself. It is sad to reflect that one can probably count on the fingers of one's hands the number of Anglo-Saxon charters out of a total of several hundreds whose bounds have been worked out on the ground itself, with a view to identifying the sites of the various

* It should however be stated that, in the opinion of the Royal Commissioners, the Abbot's Chair is in reality the base of a medieval cross of which one side has been weathered or cut away; so that the original square socket for the shaft has now only three sides. If this is so, it looks as if the chair, though it may be on the site of the Hurstingstone, is not the stone itself. There are other examples of early Hundred meeting-places which take their names from crosses; but I do not know of any instances where such a cross is referred to as a 'stone.' See *An Inventory of the Historical Monuments in Huntingdonshire*, H.M. Stationery Office, 1926, p. 296, pl. 142.

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'heathen burials,' 'barrows,' 'boundary stones' and the like with which they are filled. We owe a very great debt of gratitude for the laborious care with which Dr G. B. Grundy has worked out the charters of Wiltshire, Hampshire and other counties with the aid of the six-inch Ordnance Survey, tithe awards and the like, and he has made many notable and enlightening discoveries, but one must bear in mind that maps will not tell us everything, and that the charters will only reveal their full secret when they have been worked out on the ground itself. Mr C. A. Seyler, of Swansea, has done some excellent work of this kind on certain charters, especially on one or two dealing with land on the borders of Worcestershire and Gloucestershire, but such cases are far too few. As Dr Grundy has himself pointed out the task of tramping the bounds of the charters of even a single county is a very big one for any individual worker, and here, as in so many other spheres of work, it is clear that the solution of the problems will only be attained when co-operative work has been organized so that in each county for which we have charters we have one or more scholars who have definitely set themselves to the task of working them out.

PLATE I



THE APOLLO OF VEII, IN THE VILLA GIULIA MUSEUM, ROME
PA, Alinari

facing p. 159

The Etruscans

by D. RANDALL MACIVER

IT is surprising how little classical authors of the time of Augustus choose to tell us about the Etruscans. For Livy, Vergil and their contemporaries it might almost seem as if the Etruscans had already become a dim legendary background to history, hardly less unreal than King Arthur is to us. If they ever knew the facts they have taken great pains to conceal how much of their state religion and political organization was due to Etruscan rulers, and how completely the city of Rome itself was based upon Etruscan foundations. This is to some extent the result of a deliberate conspiracy. It was the set policy of the Augustan writers to suppress everything that did not obviously tend to the enhancement of Roman prestige ; it was their policy to distort facts, to invent legends and to carry into their literature the same single-minded fanaticism that had made the success of their nation in politics and war. We must not look therefore to the Latin writers for any scientific account of the extraordinary people that preceded the Romans almost everywhere in North and Central Italy, and, but for some strange inherent weakness, would have ruled the whole peninsula in their stead. Merely as a prelude to his story of the rise of Rome, Livy tells us that Etruria had 'filled with the renown of her name the whole length of Italy from the Alps to the Sicilian strait.'

It seems evident that the Etruscans themselves had no native historians. Whether they kept even the barest record of annals is more than doubtful ; so that if the Emperor Claudius, the earliest of Etruscologists, really composed any sort of history we have probably lost little by the accident of its disappearance. For literary evidence the modern student has to rely principally upon a few dozen more or less casual and incidental allusions gleaned from scholiasts or lexicographers, eked out with the fragments of antiquarianism in Varro ; or upon the occasional references in Greek writers who, from Aristotle to Dionysius of Halicarnassus, are uniformly inspired by the same spirit of rancorous jealousy and malevolence. What we know of the

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Etruscans is due far more to archaeology than to written records, and in many cases it entirely reverses the verdict of those who have tried to build upon insufficient literary documents.

There is, however, one great exception which proves once again that the 'father of history' is worthy of all reverence. Herodotus in his first book gives an account of the origin of the Tyrsenoi, who he says were a Lydian people driven by stress of famine to leave their own country and to settle among the Ombrikoî. This legend was universally accepted in antiquity, the only discordant voice being that of Dionysius of Halicarnassus, who based his contradiction partly on accidental or deliberate mis-readings of Herodotus and partly on the authority of a work of doubtful authenticity which was claimed to be written by Xanthus, a Lydian historian. The Lydian origin of the Etruscans was taken as a matter of course by Vergil, Horace, Ovid and the later poets, as well as by Cicero, Seneca and Pliny. But it must be admitted that this unanimity has no value as an argument, inasmuch as it all rests upon respect for the same single original authority.

It is really archaeology which has decided the question and has recently shown that, apart from any picturesque embroidery of detail, Herodotus was right in his main statement that the Etruscans came from Asia Minor. Whether their exact provenance was Lydia or some other part of the Asiatic coast is not yet determined, but the general region is well ascertained. I cannot here go into the details of the argument, but must be content to say that the Asiatic origin of the Etruscans is now accepted without question by the best modern scholars, whether of Italy, France, Germany or England. And it is further accepted that the route was not by land but by sea. This is a remarkable conversion of opinion, as until very recently all historians were following the ideas of Niebuhr, according to whom a great invading host marched by land over the eastern passes of the Alps and descended upon the plain of the Po, from which they would have gradually spread into Tuscany and Umbria. Apart from the fact that no ancient writer gives the slightest countenance to this theory, it has been conclusively disproved by archaeological discovery, which has shown that there were never any Etruscans east of the Apennines until the end of the sixth century; but that the principal coast-towns of the Maremma, such as Corneto and Vetulonia, had been founded in the ninth.

Niebuhr's theory simply inverts the true sequence. The first settlements were actually made on the sea coast of Tuscany; thence colonies were sent out which only two or three centuries later spread

THE ETRUSCANS

to the eastern side of the Apennines at Bologna, and penetrated down through Latium to Campania. In the course of this territorial expansion, which reached its height about the year 500 B.C., the Etruscans occupied Rome itself and impressed their stamp indelibly upon the nascent Roman state. For the Etruscan domination of Rome is no longer dismissed as a myth; it is an obvious historical fact, whatever be thought of the legends and embroideries which later writers wove around it.

The date of the Etruscan migration from Asia is approximately fixed by the results of excavations in Italy. We know from observations made upon sites like Vetulonia, which were continuously inhabited before and after the arrival of the invaders, precisely what the native civilization was from at least the 10th century downwards. It shows not the slightest trace of Aegean or Hellenic influence, until suddenly, a little after 800 B.C., there appears a new burial rite, inhumation instead of cremation, accompanied by a flood of new objects, all obviously imported, which are of well known near-oriental character. Allowing that graves would not be numerous for half a century after the first landing, it follows that the actual date of settlement was the middle or the end of the 9th century. Corneto and Vetulonia were the oldest cities but others were founded very soon afterwards, often it may be supposed by new arrivals from Asia Minor. For the whole movement may be best conceived not as the sudden irruption of a great host carried in a large fleet but as a steady and perhaps more or less peaceful colonization by stages. We are reminded of the settlements made by the Norsemen in their almost annual visitation of our Scottish coasts, as narrated in the Icelandic sagas. It was the triumph of small numbers over less civilized natives, inferior in arms and experience of all kinds. Throughout their history the Etruscans remained a small and narrow aristocracy, acting as overlords to the Italians amongst whom they had settled. No doubt they imposed their language to a great extent over the territory which they controlled, though it may have been in a corrupted form that it was spoken by the peasantry. Some useful analogies might be drawn with the use of Norman-French in England during the 12th and 13th centuries after Christ. Etruscan remained the normal, or at least the official, language of Etruria for some time after the Roman conquest, but ultimately it gave way to Latin. It is perhaps not too fanciful to trace in the harsh aspirating of the modern Tuscan dialect the persistence of a tendency which has come down from the Tyrsenoi. For the name of the invaders as

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transmitted to us by Greek writers was Tyrsenoi, or in a later form Tyrrenoi. Dionysius indeed says that they called themselves Rasenna from the name of one of their chieftains. I do not understand why most writers tamely accept this. It is evident that Dionysius knew no more about the Etruscans than Dr Johnson knew about the Scots, but we should not have felt obliged to change our established nomenclature if Dr Johnson had chosen to state that all Scots were called, for instance, Campbell. Tyrsenoi is the name that has left its abiding impress on history, geography, and etymology. Philologists state that 'enoi' is a termination found widely over Asia Minor. 'Tyrs' has often been connected with the name Tursha mentioned on the Egyptian monuments together with Lukki and Akaiwasha, *i.e.* Lycians and Achaeans, as invaders of Egypt in the 13th century B.C.

The language is unlike that of any other people. All attempts to prove it of Indo-European origin or affinities have totally failed; and the mere fact that it has no affiliation whatsoever with any language spoken in Italy would be enough to show that the Etruscans are not autochthonous in that country. But to what family of languages it really belongs remains an unsolved problem. The best authorities are disposed to admit that there is a certain degree of morphological connexion with near Asiatic dialects, but the scant comparative material as yet available has not shown any positive connexion with Lydian. On the other hand a stela found at Lemnos is considered to be very closely related, if it is not indeed actually written in Etruscan. Further explorations and researches in Asia Minor may be expected to throw some light upon the problem before many years have passed.

But though we may hope some day to discover the parentage and relationships of the language it will be no more than a philological victory which will be gained thereby. If the 'key to Etruscan' is ever found it will be the key to a door which opens on an empty chamber. For there is nothing written in Etruscan which could possibly tell us anything of the history or customs of the people; the most that might be learned would be a few details of religion and ritual. It is true that there are some 8,500 so-called 'inscriptions' in existence, but with the rarest exceptions they consist only of one or two words. The most usual 'inscription' is an epitaph giving no more than a personal name, a statement of relationship, and the length of the life. There are only nine inscriptions which contain anything like thirty words apiece; it is obvious that these cannot convey much information even when they are deciphered. A clear understanding of this fact is



PLATE II



TOMB-STONE OF WARRIOR NAMED "LARTHI ATHARNIES"
DATED ABOUT 700 B.C. OR EARLIER (FLORENCE MUSEUM)

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necessary to prevent the raising of any false hopes. And it must be understood that it is no discredit to philology if all the labour and intelligence expended has produced little result ; nothing appreciable could be effected with such material. Nor will a bilingual inscription work miracles if ever one should be found.

Actually the longest document in existence has a very curious paternity. It is written on the linen wrappings of a mummy found in Alexandria about fifty years ago and now in the museum at Zaghreb [Agram]. There are 1,500 words, which, with allowances made for repetitions, means really 500. From the numerous names of gods it seems certain that the context is of a religious character, probably consisting of extracts from the 'Acherontian books' mentioned by Roman writers.

If the language remains a mystery there is nothing difficult about the alphabet, which is simply a derivation from an early—but a *very* early—Greek alphabet. Old fashioned historians persist in repeating the threadbare assertion that the Etruscan alphabet was borrowed from the Greek colony at Cumae ; but modern criticism has shown good ground for believing that it was of quite independent origin and presumably brought over from the original home of the Tyrsenoi. Three early examples of it are extant ;—one carved on an ivory tablet from Marsiliana in the museum at Florence ; one scratched on a pottery jar from Veii (Formello) in the Villa Giulia at Rome ; and the third scratched on another pot from Caere now in the Vatican museum. Of these, the Marsiliana example certainly belongs to the first half of the seventh century ; the others are probably of much the same date.

This alphabet differs in several respects from the Chalcidian alphabet known at Cumae, notably in retaining two letters, the fifteenth and eighteenth, which correspond to Phoenician consonants. In the Formello version the fifth and sixth letters are inverted from the order which they hold as sixth and fifth at Marsiliana and Caere.

One of the earliest inscriptions of Etruria is seen on the grave-stone of a warrior known as Avtiles Feluskes, in which the peculiar Lydian letter 8 is used for 'f.' Of the same approximate date—about 700 B.C. or earlier—is the figure of a warrior reproduced on plate II. This name is written as Larthi Atharnies.

But the art of the Etruscans even in the 8th century was of a far higher character than these rude effigies suggest. Sculpture, in which they were soon to rank so high, was still in its infancy, but the minor arts of goldsmith and coppersmith had been brought to a high pitch of

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	Marsiliana	Formello	Cerveteri	
1.	A	A	A	= a
2.	B	B	B	= b
3.	C	C	C	= g
4.	D	D	D	= d
5.	E	F	E	= e
6.	F	E	F	= f
7.	I	I	I	= z
8.	H	B	B	= h
9.	⊗	⊕	⊗	= th
10.	I	I	I	= i
11.	K	K	K	= k
12.	L	L	L	= l
13.	M	M	...	= m
14.	N	N	M	= n
15.	⊞	⊞	⊞	= s
16.	O	⊙	⊙	= o
17.	P	P	P	= p
18.	M	M	N	= s
19.	Q	Q	...	= q
20.	R	P	P	= r
21.	S	ε	ε	= s
22.	T	T	T	= t
23.	Y	Y	Y	= y
24.	X	X	X	= cs
25.	Φ	Φ	P	= ph
26.	Ψ	Y	Ψ	= ch

THE ETRUSCAN ALPHABET: FROM DUCATI'S "ETRURIA ANTICA"

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excellence. It was natural that the copper-smiths should be particularly skilled inasmuch as this was the oldest of all the crafts in Etruria. The native Villanovans had been quite notable workers in bronze before ever strangers came from the east to instruct them. It was undoubtedly the presence of extensive deposits of copper and iron in Tuscany and the neighbouring island of Elba which tempted, first the Villanovans and then the Etruscans, to settle there. These mines were exploited for many centuries and were always one of the main sources of the wealth and power of the Etruscans. The working of iron took a fresh impetus under them, the ore being brought over from Elba and smelted on the mainland at Populonia, where numerous slagheaps of the Roman period have proved worth reworking in modern times. To the excellence and abundance of their weapons both of bronze and iron may be attributed the rapid military successes of the Etruscans. They were however excellent administrators in other respects, introducing new methods of agriculture, draining the marshes and planting vines as well as olives and grain. Almost the whole country when they arrived was covered with dense forest, which not only provided the wood for furnace fires, but supplied the timber required for shipbuilding. As a sea power the Etruscans, who must have been sailors in their original home, soon became extremely formidable and dominated the western coast, allying themselves sometimes with the Carthaginians against their common enemy the Greeks. Thus it was the result of a sea-fight against the Phocaeans in 540 B.C. which brought Corsica under Etruscan domination. Soon after this their empire—to use a word which is convenient though not very accurate in this connexion—had reached its greatest extent and began to crumble. If the expulsion of the Tarquins from Rome was merely a local incident it was yet significant as one of the first stages in a struggle which soon involved the Etruscans in fighting simultaneously on three fronts, against Samnites in Campania, Romans in Lower Etruria, and Gauls on the northern border. In these wars they were robbed of all their external territory and eventually lost even their own independence. The last stages of the conflict, described by Polybius, may be said to end just before the outbreak of the first Punic war in 264 B.C.

If in the mortal struggle against all the enemies that surrounded them the Etruscans were eventually worsted, it is not necessary to attribute their failure to effeminacy or loss of courage. Their political organization was a loose confederacy; at no time was there a single capital or single head. Each city developed independently and often

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made war on its own account without calling in its confederates. Consequently the Romans, pitilessly concentrated on a single aim under unified leadership, were often able to destroy their adversaries piecemeal. But the stubborn defence maintained for years by a single city like Veii is ample proof of the warlike vigour and tenacity of its people. The philistine Romans doubtless considered that art was incompatible with manhood and that the gods punished all who neglected strict business. And the envious Greeks were at all times delighted out of sheer malice to retail stories attributing to the Etruscans an immorality and luxury which were evolved from their own imagination. Some of the Greek statements can be proved to be absolutely untrue, and there is no need to give overmuch credence to any of them. It is quite clear that the character of the Etruscans will always be misrepresented by historians who repose a blind faith in either Greek or Latin writers.

It is the business of the archaeologist to redress the balance and to use the documents, unwritten but not difficult of interpretation, supplied by the Etruscans themselves in their painted tombs. The publication and the study of these paintings is making rapid progress; like the Egyptian paintings they give innumerable details of daily life. To them must be added stories and ceremonies recorded on bronze vessels like the situla of the Certosa from Bologna. And the harvest of excavations, intensified during the last forty years, has added material for almost endless study of arts and crafts.

Etruscology is of course nothing new; sporadic discoveries of objects of art were sometimes made as early as the fifteenth century. In 1616 our countryman Sir Thomas Dempster, living at Pisa, published a book *De Etruria regali* which was considered of great importance. During the 18th century several museums were founded in Italy; painted tombs were studied and there was a wide epidemic of what has been called Etrusco-mania, during which everything of interest and beauty was attributed to this one people. It was this period which initiated the error of calling Greek painted vases Etruscan, an error of which echoes may still be detected in various popular books of our own day. The great development of Greek archaeology has dispelled such misunderstandings; but now there is a quite perceptible danger in the opposite swing of the pendulum. The best modern critics and writers are so dyed in Hellenism that they are apt to approach the whole subject of Etruscan art and culture from a prejudiced standpoint. Everything that is good in Etruscan work is attributed by them not merely to Greek influence but even to Greek workmanship.

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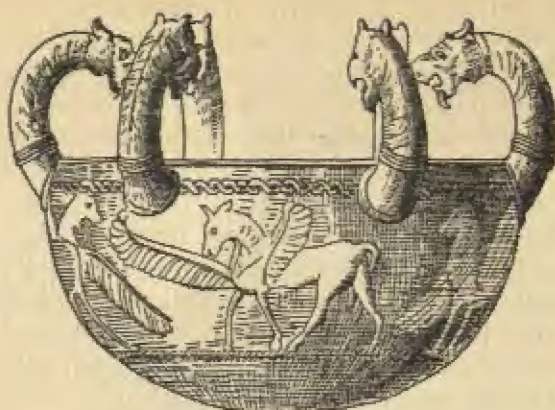
It has been a fashion for many years to assume that there was no indigenous civilization in Italy underived from Greece. Slowly it is being appreciated that this was an error, and that long before Greek merchantmen passed the straits of Messina there were strong centres of civilization in north and central Italy which owed nothing to Greece or to the Aegean. Now it is necessary to go further and to analyse the multiple sources which contributed to form the Etruscan civilization. It unquestionably owed much to Greece, but it also owed much to a general Aegean culture of which Greece formed only a fractional part. Behind this is a permanent background composed of a heritage of near Asiatic feeling and tradition particularly noticeable in the religion. And finally there is a core of original native genius which hardly any writer has yet attempted to value impartially.

To discuss these statements in detail would require many pages ; here I can only make a few broad generalizations. Briefly then I would say that for the first 150 years, from 800 to 650 B.C., the Etruscans owe an immense deal to the Aegean and the near-East, but very little to Greece. From 650 B.C. onwards that remarkable susceptibility to new influences, which reminds us somewhat of the Japanese, leads them to adopt every new fancy or invention, and the new inventions of this period were almost wholly of Greek origin. But throughout the whole time down to at any rate 500 B.C. they were not mere imitators but creators of a new school which bears the impress of fresh and original genius.

In estimating the artistic originality of the Etruscans it must be remembered that they were probably quite expert craftsmen before ever they sailed to Italy. The first bronzes that appear in the circle-tombs of Vetulonia, before 700 B.C., are very remarkable products. The huge cauldrons were thought good enough to send as offerings to Olympia. A cauldron of some forty years later from Caere is shown, with the support on which it stood, on page 168.

Jewellery of gold and silver is abundant in tombs of about 700 B.C. and, even if some of the earliest specimens may have been imported, internal evidence shows clearly that the majority of gold fibulae, bracelets, pins, etc. were of local manufacture. Numerous examples in repoussé, or in the extraordinarily difficult technique of granulation, have come from the tombs of Vetulonia. Several of these are shown on page 170, taken from Karo's classical article on the jewellery of Vetulonia, in Milani's *Studi e materiali*.

It is however rather in the early seventh century than in the eighth



1—CAULDRON FROM CAERE (circa 650 B.C.)

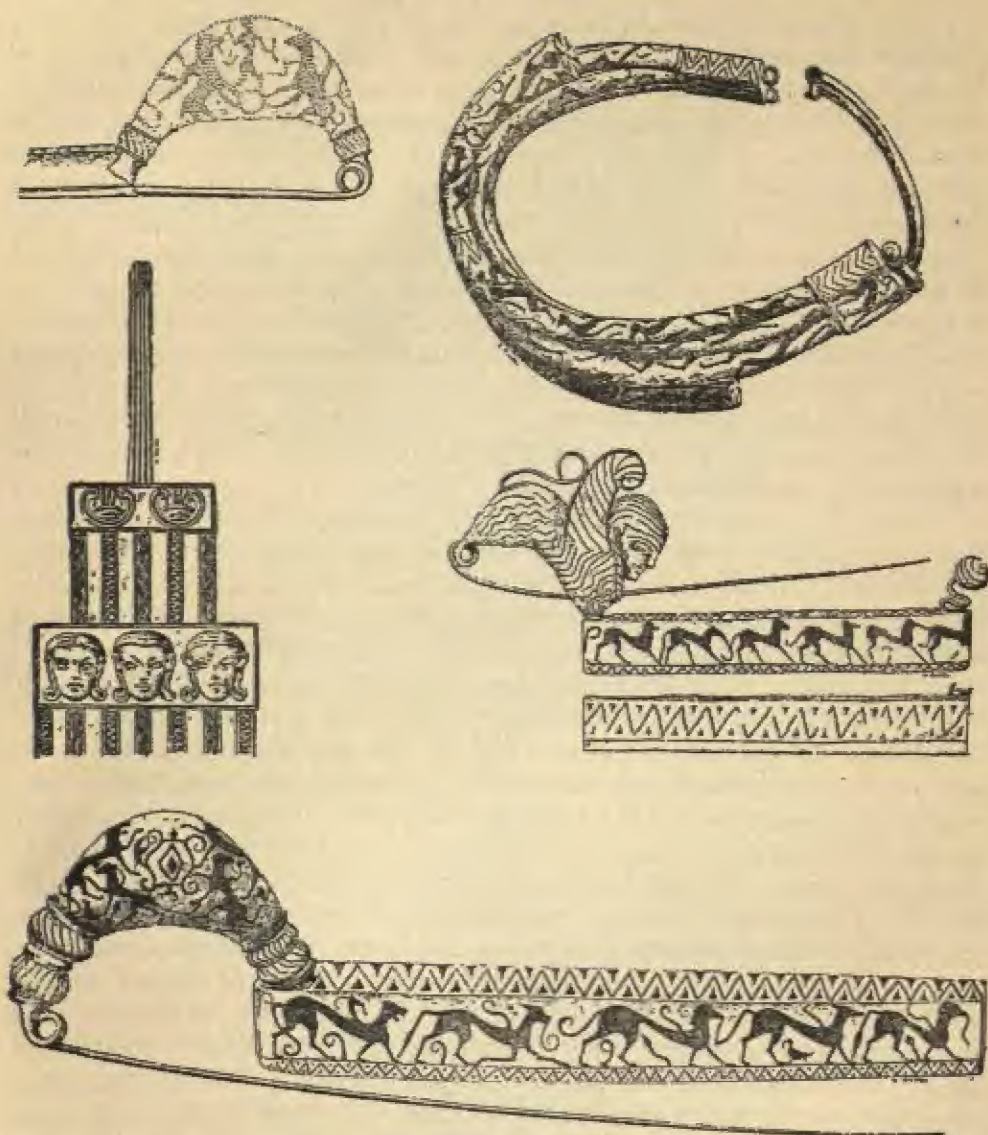


2—STAND FOR THE ABOVE

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that we should place the highwater-mark of an Etruscan art still untouched or very little affected by the Greek. Dating from about 670 B.C. there are three famous tombs, one from Caere and the other two from Praeneste. The contents of these tombs may be seen severally in three museums at Rome, *viz.*, the Vatican, the Museo Preistorico, and the Villa Giulia. A detailed inventory of these three tombs would require a complete memoir to itself. There are silver bowls with long processions upon them; ivory carvings of men and animals and fabulous beasts; gold pectorals and clasps, some of the most exquisite taste and others less beautiful but exhibiting an amazing mastery of technique. Much of this work is doubtless imported but none of it is Greek, though it may be Phoenician, Cypriote, or in a general sense near-Oriental. But with it all is fine bronze work in enormous quantity—beds, and thrones, and chariots, cauldrons, bowls and innumerable other objects large and small, none of which can be regarded as imported. All this, and perhaps much of the jewellery, was made in Etruria, presumably by Etruscan workmen.

From the middle of the seventh century the Greek influence becomes predominant; the centres of importation have changed; Corinth is a principal source of supply; and much Ionic work, soon followed by Athenian, comes in through the Greek colonies in southern Italy. But the independence of the native character often shows itself quite strongly. The invention of a new class of pottery, the famous *bucchero*, is not in itself a great achievement but it is one among many indications of the extraordinary skill of the Etruscan potters. This was exercised however on far more important subjects than small vases; the greater part of the statuary was made in terracotta before ever the Etruscan bronze figures became famous all over the Mediterranean. Temples were not architectural constructions; they were built of wood, with at most a foundation of stone, but they were externally decorated with fictile ornaments in polychrome terracotta, and the shrines within were furnished with terracotta figures of the deities. That the fame achieved by the Etruscan sculptors was thoroughly well-deserved is proved by a group from Veii of which one figure, the Apollo, is virtually complete (plate 1). It is the most important surviving example of Etruscan art, much earlier and even more interesting than the amazing bronze chimaera of Arezzo, and far more interesting than the magnificent bronze chariot of Monteleone, because this is entirely dominated by the foreign Ionic style. If there is Greek influence in the Apollo of Veii it is very slight; the whole



ETRUSCAN GOLD JEWELLERY FROM VETULONIA: FROM MILANI'S "STUDI E MATERIALI"

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spirit of the artist is spontaneous and original. This is the conception of a great master, executed with a technical skill never surpassed.

The Apollo, now in the museum of Villa Giulia at Rome, has a peculiar interest for all those whose primary study is the history of Rome, because it is the work of one of those Veientine sculptors who were employed as we know to decorate the Capitoline temple. This was built by the Etruscan kings during the last years of the sixth century in honour of that triad of gods whom the Romans represented as Jupiter, Juno and Minerva.

I have spoken of the primitive character of temple-buildings, but Etruscan architecture is a subject too difficult and obscure for treatment in this place. It has never been scientifically and thoroughly studied with a critical appreciation of the differences of period. There is some reason to think that it was only gradually evolved on the soil of Italy, as the earliest years have so far produced no remarkable works of building. In the seventh century there are various tombs which show analogies of style with different parts of the Aegean, but it would be dangerous to found wide-reaching theories upon these resemblances. In the time of their greatest power however the Etruscans were skilful engineers and builders, who may well have taught the simpler Romans much of the science for which these afterwards became renowned.

The debt which Rome owed to Etruria is enormous and beyond all estimate. In one sphere only it has been fully and honestly acknowledged by Latin writers ; this is the sphere of religion and of ceremony. We have seen that the earliest temples in Rome were built by the Etruscans and must infer that the gods who preceded Jupiter, Juno and Minerva were Etruscan deities with Tinia, rather than Zeus or Jupiter, as their chief. But this was no passing phase. The whole fabric of the official state religion and the calendar with its machinery of Ides and Fasti were derived from Etruria. Down to the time of the Emperor Julian, Etruscan diviners were part of the general staff of every Roman army. The martial organization of the army itself, the dress and ornaments of a triumphing general, were Etruscan. From Vetulonia were derived the insignia of the Roman magistrates, the curule chair and the lictors with their fasces, the purple toga and the trumpets. In countless details of their public and private life the Etruscan origin of Roman civilization is manifest. One last point remains to be mentioned—the name of *Rome* itself is probably Etruscan.

Christian Vikings

by W. G. COLLINGWOOD

MOST writers, ancient and modern, represent all Vikings as enemies of Christianity. It seems to be still believed that wherever they went, and at all periods, they sacked churches, massacred monks and nuns, and played havoc with civilization. That was certainly the view of politicians and chroniclers from Alfred to William the Conqueror. Even recent historians repeat the charge, sometimes with quite unnecessary emphasis.

In this article it is not proposed to whitewash the race in all respects—that would be impossible—but to bring forward certain scraps of evidence, not generally recollected, to set off against the too universal chorus of reprobation. In a word, there were such people as Christian Vikings; that is to say the immigrant Danes and Norse of that turbulent age, though always pirates on occasion, softened their manners as time went on, long before their general conversion to organized Christianity. Strange to say, some of the churches that are still with us owe their foundation to the Viking settlement in Britain.

Time was needed for the transition from “the fury of the Northmen,” attracted by the wealth of the churches rather than by any sort of inverted crusade or anti-Christian enthusiasm, as some have imagined. And yet the change began to appear even in their first generation. Irish annals are dismal reading all through that age, and none the less because we find how often the Christian Irish themselves did the things of which the ‘Gentiles’ are accused. But the plundered churches were plundered again in a few years; their ruin was only partial, and restoration seems to have been the rule. At such places, clerics lived on to good old age though some, here and there, suffered martyrdom. And even of the Vikings who had come as heathen, instances of conversion can be given.

Queen Aud, the widow of Olaf the White at Dublin, was a christian before she went to Iceland about 892. With her, as ninth century christians, the Landnámabók names Helgi Bjóla, her brother, who had settled in Iceland before her, and Ketil the Foolish (so they thought

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him, no doubt), her nephew, who settled at a place where formerly Celtic monks had lived, "and heathen could not dwell there" says the old book. About 890 came Helgi the Lean, the man who prayed to Christ when he was at home, but to Thor when he was at sea or in a tight place. Among early Icelanders were Jörund the Christian and Örlyg the Old, whose story is much to our purpose. He had been brought up in the Hebrides by a bishop named Patrick, who fitted him out with wood for building, consecrated earth to put under the pillars, an iron bell and a service-book (*plenarium*), and told him to build a



FIG. 1.—RUINS OF ST. PATRICK'S CHAPEL, HEYSHAM, BEFORE RESTORATION

church to St. Columba at a place he described, for pre-Viking clerics knew something of Iceland. The first landing he made is still called Patreksfjord, after the bishop; and when he found the place described he built the church and "he and his kinsmen believed in Columba."

Another Icelfander who had come from Caithness used to pray before the cross, "Ever good to old men; ever good to young." Another, named Ásólf, lived as a christian hermit, not without persecution, and long afterwards was "remembered as a most holy man." Indeed the early twelfth century author of the *Landnámabók* ends by

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saying that "most of the settlers who came from west over sea (Britain and Ireland) had been baptized, and some of them held well to their christening to the day of their death; but in few cases did this pass from them to their children," and so Iceland relapsed into paganism for nearly a century until the general conversion in 1000 A.D. The Christianity of these ninth century Vikings was at no time organized; it was highly elementary at best, though it was something more than the mere 'prime-signing' that gave some of the heathen the liberty to do business at christian markets. But it was not a forced conversion, as in Norway under King Olaf; so far as it went it was sincere. It left them unmitigatedly ready to fight; but then the christian warrior is a consecrated type. On a monument at Gosforth in Cumberland, there remains, rudely cut and battered, his effigy; more like Thackeray's idea of Colonel Newcome than anything else.

Now all this change must have come about in Ireland and north Britain, with the first and second generations of Viking immigrants. Inter-marriage, of which there are many examples, was an important factor, no doubt. Church-robbing went on, but it would have gone on, Vikings or no Vikings. At last we come to an entry like this, in the Ulster annals of 920:—"The spoyle of Ardmach the 3rd of November . . . by Godfrith O'Hivair [grandson of the old Ivar who killed St. Edmund] with his men, who saved the houses of prayer with their people of God ['Culdees'] and lepers, and the whole church towne, unless some howses were burnt through neglect." It was not the Norse who wrote this entry, but the Irish chronicler, their enemy. Then in 962 or 963, noting the plundering of Kildare, he tells us how the clerics were held to ransom. And in 972 the Viking lord of Limerick himself sought refuge in a famous sanctuary. It is clear that during the tenth century the Irish Danes and Norse had adapted themselves to environment to some extent.

In England the change was more rapid and decisive. In 878 the archbishop of York, after a dozen years of refuge in Wharfedale, was able to take his accustomed place at the capital. In 883 the Danes elected a king who was already a christian; the story is hagiologic in its details, but the fact of general tolerance, if not conversion, tallies with history. In 900 the see of Lindisfarne was re-established at Chester-le-Street. Things did not go on quite smoothly, as we see from the story of that *filius diaboli*, Olaf Ball, who resisted the bishop and shouted in the church that his strong gods, Thor and Odin, were better than St. Cuthbert: for which he was promptly struck down

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dead by the Saint's power. This would be about 921. But the great series of grave-stones, reflecting in Yorkshire the Danish taste in art, shows that there was a general acceptance of Christianity, at least from about 930, when the Danish 'Jellinge' style of ornament came into vogue on both sides of the North Sea and fixes the date of these monuments.

On the western coasts of Northumbria, in the country between Wales and Galloway, Danes did not settle. There is, however, a mass of cumulative evidence to show—and the evidence is now favourably regarded by scholars—that Celto-Norse Vikings settled from the earlier part of the tenth century onwards. The place-names have been treated by Professor Ekwall, who suggests about 920 or so as the beginning of this settlement in Cumberland; it was earlier in the south of this area, if we take Ingimund, who came to Cheshire from Dublin in 900, as the first. In Iceland the process of colonization went on, the author of the *Landnámabók* says, for sixty years; and in north-west England it was no doubt as gradual. The earlier pagan raiders have left such remains as those found in the barrows at Aspatria and Hesket in Cumberland, and perhaps the great silver fibulae from Dacre and Casterton, distinctively Norse and tenth-century. But when these people came to stay, they buried their dead under tombstones modelled on the christian types they found in the country and at sites which ever since have been christian graveyards. These tombstones are not exactly like those of the Anglo-Danish group in east Northumbria; they are Anglo-Norse. No more are they pagan, as used to be said by some antiquaries of the last century; the christian emblems they bear, their cross-form and their sequence in type from the great series of christian monuments in Britain show that they were put up to commemorate christian Vikings.

The Anglo-Norse series begins perhaps with the rude slabs, like those of Craignarget in Galloway and Aspatria in Cumberland, bearing the *swastika*, which does not appear on pre-Danish Anglian crosses, but seems to have been learnt by the Norse from eastern Christendom. It was already a Byzantine form of cross, and the road through Russia had been explored in the ninth century and was freely used in the tenth. The series continues with carved crosses and hogbacked recumbent stones, of which the earlier cannot be later than the Manx crosses by Gaut Bjarnarson, whom Dr. Haakon Shetelig has dated from about 930 onwards. It culminates in the great Gosforth cross, with its round shaft imitated from other parts of northern England, and with

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its curious figure-subjects which seem intended to illustrate the Edda. Typology would place this cross about 1000 A.D., but after this there is still a long series of monuments carrying on the developments of the Anglo-Norse style far into the eleventh century. And as these are adapted from pre-Norse art, they show that the Viking Christians settled down, apparently without much friction, alongside of the native Cumbrian and Anglian villages still traceable in the Norse-settled district by their place-names.

Several churches in this Norse-settled district appear to have been founded in the Viking age. They have monuments of that age, but not earlier, and their ancient dedications are not native but Celtic. When we find the names of SS. Patrick, Bridget and Columba in these parts, where they never preached (speculative theories that they did so are only based on these dedications), and when we remember the great distance between their days, their racial interests and their religion, separating them from the Anglian church of the seventh to the ninth centuries, we cannot believe in a continuous tradition reaching back to the fifth or sixth century. There are no definite traces of the pre-Anglian Cumbrian church except the name of St. Kentigern, and that may be a re-introduction rather than a continuous survival. But when we see that settlers from over the Irish Sea came here in the tenth century, and that they were more or less christian like Örlyg, who carried the cult of St. Columba to Iceland from the Hebrides; when we find the relics of such people at the churches dedicated to Gaelic saints, and the place-names they gave attaching to the sites; then the suggestion that the Patrick, Bridget and Columba churches were founded by Celto-Norse settlers is the only interpretation of the facts. A few instances will explain more clearly.

At Heysham near Lancaster are two ancient buildings, the church of St. Peter and the chapel of St. Patrick just above it. Close to St. Patrick's are rock-cut graves; the chapel itself is in plan like a Celtic oratory of the tenth century, but it has a round 'Saxon' arch to the doorway and jambs of long-and-short (fig. 1). The church of St. Peter shows twelfth-century work and even earlier features; it was granted to the abbey of Séez in Normandy in 1094 but is not mentioned as a church in Domesday Book, so that we can date the first stone building pretty closely to about 1090. But there must have been an Anglian church on the spot two hundred years and more before this Norman rebuilding, because in the churchyard were discovered a cross-shaft of the first half of the ninth century, a cross-head of perhaps a little

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later (fig. 2), and the base of a cross. There was also found here the hogback, very rude and curious but certainly of the Norse series and dating 1000 A.D. or rather later (fig. 3). How can we fit these facts into the history of Heysham?

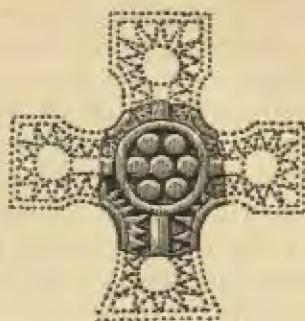


FIG. 2.—NINTH CENTURY SHAFT AND
CROSS-HEAD, HEYSHAM

We have a ninth-century Anglian church, no doubt of wood. Early in the tenth century we read that Vikings were raiding, before they settled, on this coast; many other instances suggest that the clerics were driven away by that danger. Some time between 920 and 950 the Vikings gave up raiding and began to settle here. They

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would find St. Peter's deserted and decayed ; they were by this time christianized and would need the proprietary chapel frequently attached to a capital settlement. Such a chapel would be built by Anglian masons, but to the plan of the new-comer from Ireland, and the name of St. Patrick, which appears to be traceable here as far back as the earlier middle ages, needs no further explanation. Near it are the rock-cut graves of the Norse family ; the hogback, found below, was probably brought down to serve as a building stone, for we know from very many examples how the Normans used monuments of the previous age in their masonry. And as to the late legend of St. Patrick's landing at Heysham, it may be regarded as a myth of explanation, like that by which the fourteenth-century monks of St. Bees tried to explain their own name. *Sancta Bega* pretty certainly meant the old Norse holy ring on which oaths were sworn, and it is recorded that such a



FIG. 3—THE HEYSHAM HOGBACK

ring was so used there in the thirteenth century ; but its meaning had been forgotten, and a story of St. Bega was required. They thought they found the name in Bede's *History of the Church*—Begu, the nun of Hackness ; they had some traditions that the place was founded by settlers from Ireland, and so they brought Begu from thence, and dressed her up with all the common-form of hagiology in a long story which may still be read with interest, if not edification. At Heysham or Lancaster there was no doubt a similar tale to explain, ' Why St. Patrick's ? ' and the substance of it is handed down. But its historical value is nothing at all ; less at any rate than the inference that the chapel was founded by a christian Northman, somewhere about 950, from Ireland.

The name of Patrick occurs also at Aspatria, which was formerly written Ask-patric, meaning Patrick's ash-tree, and in Patterdale,

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formerly Patrick-dale ; but in neither are we sure that it meant the saint. Patrick de Culwen was medieval owner of Bampton Patrick and Preston Patrick in Westmorland, and this may account for the dedication of the church of Bampton. But St. Patrick's at Ousby, anciently Ulvesby, the house of Ulf, who by his name may have been a Norseman, looks like another example of a church founded by a Viking.

To St. Bridget there is a church at Beckermeth in west Cumberland, near another to St. John the Baptist ; both are ancient dedications, and both have monuments of the Viking age and none earlier. The two round-shafted crosses at St. Bridget's, one with a curious inscription which seems to be Gaelic, show the same blending of Anglian tradition with Norse motives of ornament ; they date to the early eleventh century and suggest a Norse founder in the tenth. Other Bridget churches in the same Norse-settled area are Bridekirk and Brigham, both with carved stones of the late tenth century but not earlier ; both therefore come into our series. Kirkbride was so named by the twelfth century, and is certainly an old name ; but as the church was then rebuilt with Roman stones and in spite of restoration has never been explored down to the foundations, pre-Norman monuments have not been found. The same may be said of Moresby ; and with this we have named all the Bridget sites in the diocese of Carlisle.

St. Columba appears twice in that diocese as patron, at Warcop church and at the ancient and long extinct chapel of Casterton. Warcop, at the dawn of medieval county history, was owned by a Norse-named family, and a branch of the same family owned Casterton. The old road over Stainmoor passes Warcop ; it was the Viking highway between York and the West, and probably the ' Steinmor ' where king Eric Bloodaxe was killed in battle about 954. Another dedication to St. Columba occurs further along this road at Topcliffe in Yorkshire, and there we find a late pre-Norman cross. With these hints before us we can hardly believe that the name of the saint came into Northumbria as a result of his actual presence, which any reader of his life knows to be out of the question. As a Norse importation, we have the example of Örlyg to quote.

To these instances we might add the site, as old as Domesday Book, of Kirksanton in south Cumberland, matching Kirksantan in the Isle of Man, and referred similarly to a St. Sanctan. There are other churches that might be attributed to Viking age foundation by Norse settlers, but these with Gaelic names put this matter to the test, because south of the Solway Gaelic has never been spoken and is found in

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place-names only where a Celto-Viking origin is probable. That the dedications are as old as the churches cannot be proved, but most of them are known from early medieval times; and though post-Conquest dedicators sometimes had an antiquarian turn (as when a bishop revived the cult of St. Herbert of Derwentwater, basing upon the notice in Bede) there was no reason for ecclesiastics of the Roman church to commemorate saints of the Gael with whom they had nothing in common.

The contention proposed in this article, then, is that Viking settlers were very largely, if imperfectly, christianized in the ninth century, long before the general conversion of Scandinavia; and that in one or two generations more their descendants, in settling parts of northern England, became the founders of churches which have endured until our day.

"L'Affaire Glozel"

by O. G. S. CRAWFORD

ON 27 September 1926 the learned world was startled by a letter from Monsieur Salomon Reinach, published in *The Times*. The writer expressed the opinion that the Palaeolithic period (the last phase of which is represented in France by La Madelaine) might have lasted up to 5000 B.C. M. Reinach is Director of the National Museum of Saint-Germain-en-Laye, near Paris; his reputation as a savant stands very high, and he is listened to with respect. The discoveries which prompted him to express this unorthodox opinion were, he says "ascertained last summer at Glozel near Vichy. In the same stratum, no doubt a deposit of a religious character, have been found—(1) objects akin to the Neolithic culture of the Aegean, one of them being an idol in the shape of a violin; (2) inscriptions closely related to those found in 1894 in an early Portuguese dolmen; (3) numerous engravings of animals on pebbles, the style of which is degenerate Magdalenian. As the objects classified under (1) and (2) date from about 4000–3500, degenerate Magdalenian outlines (3) cannot possibly be earlier, and we thus have a proof, which I think is conclusive, that the Magdalenian should be dated about 5000 B.C." Thus from the outset the discussion of the issues has been confused by questionable fact and faulty inference.

The most surprising objects from Glozel are the inscribed clay tablets. If genuine, and if they belonged to any of the various remote pre-Roman periods claimed for them, they would revolutionize our conception of those periods. I determined therefore to go and see them for myself. I inspected the site of their discovery under the guidance of M. Emile Fradin, who, it may be noted, was a boy at the time of their first discovery in 1924. I was shown his own collection at the farm, and later visited Dr Morlet at Vichy and saw the remainder of the objects. I came to the conclusion that the majority of the objects were quite certainly forgeries. That being, in my opinion, so, it becomes unnecessary to waste time discussing the remainder, whose character was not so immediately apparent. These

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other objects might or might not be genuine, but the point is not worth discussion; for when once a site has been salted, any objects previously found there cease to have any scientific value.

The clay tablets resemble dog-biscuits. They may be divided into two classes—the rough and the smooth. The rough tablets are made of clay mixed with a good deal of grit; the smooth ones are made of clay unmixed with grit and are apparently harder. It was stated by Dr Morlet (in conversation with me) that this difference was due to the smooth tablets having been washed by the finders; but no amount of washing can turn a tablet of gritty clay into a smooth one. The smooth tablets are the best in every way; the writing on them is clearer than on the others; there are more perfectly formed signs; and some of the tablets are of great size. None of the smooth tablets are, if I remember right, fragmentary. The same difference of texture is observable in the other clay objects—the pots and phallic objects, for example. As many as fifty had been found up to the time of my visit.

A large, well-preserved, inscribed clay tablet of the smooth kind was pointed out to me by M. Fradin. There is a jagged hole through the middle of it, yet the tablet is not cracked. Through this hole passes a root about as thick as one's little finger. (This is the one which attracted M. Reinach's attention, as no doubt was intended). Now the hole must, by hypothesis, have been there before the tablet was discovered. How was it made? I can think of no reasonable explanation, for any natural force, exerted strongly enough to pierce a buried tablet of baked clay more than an inch in thickness, must most certainly have fractured it; and the ragged edges of the hole exclude the possibility of long-continued friction. On the other hand, the device is just such as a clumsy forger would adopt to bolster up his case.

The pots are extraordinarily thick-sided, and the bases are solid; in fact the so-called pots are really no more than lumps of clay with a hollow in the upper part. They are unlike any pottery, prehistoric or other, that I am acquainted with, except that of the mud-pie variety made by children.

The so-called flint arrow head (III, fig. 2, centre)* is a natural shape, slightly improved to make it more convincing. Dr Morlet has stated (III, p. 8) in words emphasized by special type—that not one of the flints has been polished ("aucun silex n'est poli"). That is incorrect.

* See Bibliography, p. 188.

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Amongst the flint débris—one cannot call it more—amassed by M. Fradin, I observed several tiny fragments of polished flint. It was gratifying to me to find that neither had escaped the lynx-eyed Professor Breuil, whose description of the flints is illuminating. "L'examen des silex recueillis temoigne de leur faible nombre, et, bien qu'ils soient éclatés par l'homme, d'un état si fragmentaire et esquillé, que la plupart ne sont que des débris sans importance morphologique. Plusieurs sont cependant faiblement retouchés, mais aussi atypiques. . . . Il n'y a ni grattoir, ni burin, ni morceau de lame bien venue, ni aucun type. Rien absolument ne rappelle le Paléolithique, ni l'Azilien, ni le Tardenoisien, ni notre Néolithique normal. . . . En revanche, j'ai observé qu' environ un tiers des petits fragments de silex sont des menues parcelles de haches polies en silex, bien que, jusqu'à présent, aucun autre fragment plus important ou hache complète de cette nature n'ait été rencontré" (*L'Anthr.* xxxvi, 546, 547). Against M. Breuil's verdict it is instructive to set Dr Morlet's conclusion (III, p. 9): that the flint industry is a direct inheritance from the industry of La Madelaine ("il est à noter que leur industrie du silex est un héritage direct de l'industrie Magdalénienne").

Harpoons were found, and three were claimed by Dr Morlet to be of stag's horn and of Magdalenian type. Two of them had 'letters' engraved on them. But they are not of stag's horn at all, but of bone, and fresh 'green' bone at that! No trace of stag's horn, or of objects made from it, has been found at Glozel. (Stag's horn is not easy to obtain nowadays on a farm). And as for the Magdalenian character of the workmanship—in the opinion of Professor Breuil, the technique of the bone workmanship has no connexion with that of palaeolithic sites (actual or derived), where the graver was the implement used for cutting this material. ("La technique du travail de l'os n'a aucun rapport avec celle des milieux paléolithiques ou dérivés, où le burin était l'instrument usité dans le débitage de cette matière," *L'Anthr.* xxxvi, 548). According to the same writer the material used was the cannon-bone of a large animal (ox or horse?) which had been laboriously carved with a knife and then rasped, the points of the barbs being however left blunt! He concludes by stating that he does not know of any harpoon of any age which has been so badly made. ("Je ne connais actuellement aucun harpon d'aucun âge qui soit aussi mal réussi").

The thing, indeed, is an obvious forgery, and it struck me as such the moment I saw it and before I knew of M. Breuil's opinion.

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It is also obvious that it is made of bone, and one is at a loss to understand how Dr Morlet could have failed to recognize this most patent fact: for the bone is smooth, white and hard.

The presence of these ugly but well-conditioned bone harpoons needs explaining for another reason. In his first pamphlet Dr Morlet argued that the trench where the original discoveries were made was a grave (I, fig. 1, opp. p. 10), and that the bones it contained had been destroyed by humic acids dissolved in rain-water. ("L'absence d'ossements s'explique par. . . la facilité avec laquelle les eaux pluviales arrivent à dissoudre les matières osseuses"). Such action undoubtedly does take place and there are good reasons for supposing the site in question to be favourable for it. Dr Morlet refers to the subject again later but meanwhile (presumably, for no dates of discovery are given) the bone harpoons and a few other bone objects had turned up, all in splendid preservation! So we are told that it is very probably due to the combined action of the chemical agents described that we find at Glozel only *rare remains of bones* ("que de rares débris d'ossements"). Chemical action might well explain the *absence* of bone but how can it possibly explain its *rarity*? And the rare specimens are themselves in perfect condition!

There are a number of objects of slate and other easily worked stones; they include a harpoon and a barbed "arrowhead"—a palpable forgery,—and pebbles from a river-bed with ground edges, obvious imitations of axes. (I have made such "axes" myself from the same materials and nothing is easier). Several of these objects have "letters" engraved upon them. All are of course "votive." None are serviceable, though some are less clumsily made than the bone harpoons and the flint "arrowhead." But slate is easier to work than flint; it is a material that has always been beloved of the forger. Hence we get good objects of slate but very poor flint ones—indeed the "arrowhead" is the only flint object that might be called an implement or weapon.

I was shown some animal teeth, sharpened to a fine and delicate needle-point, the socket-end being left thick and unworked. I have seen nothing like them elsewhere. They are the only objects which did not necessarily appear to be "votive," but in such bad company they need all the more explanation for that!

In addition to all these spurious finds there are some which are genuine antiquities though not prehistoric. I refer to the débris of a glass factory. The remains consist of many glass 'drops'; fragments

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of glass vessels with very thin sides ; pieces of large vessels made of hard light-grey vitreous paste (not sandstone, as M. Reinach states, p. 2) ; and possible remains of a kiln. The sides of the vessels are an inch in thickness, and the whole of the base of one has been found, containing a thick layer of glass. This had been poured into it in a molten state. Many fragments of these thick-sided vitreous pots are to be found lying about upon the site. I brought away some that I picked up myself. Dr Morlet declared in his first brochure that this glass-factory was Neolithic, and claimed it as providing evidence that glass was known during the Neolithic period in Central Europe. (" Les découvertes de la station de Ferrières (*i.e.* Glozel) apportent, semble-t-il, une nouvelle preuve que le verre existait dès le néolithique dans l'Europe occidentale," I, p. 42). Even so recently as in the third brochure, Dr Morlet claimed that the site was homogeneous. (" Nous avons toujours insisté sur le fait que la station de Glozel ne présente qu'une seule couche archéologique, sans distinction stratigraphique possible. Les divers objets que nous recueillons se trouvent aussi bien au fond qu'à la surface de la couche fertile, qui a, en moyenne, une épaisseur de trente centimètres environ. Toutes nos trouvailles sont mélangées les unes avec les autres. . . ." III, p. 47). Now, however, it is claimed that this glass débris is only found on the surface. Dr Morlet himself stated this to me in conversation, and M. Reinach seems to confirm it by his remarks on p. 2 of the *Antiquaries' Journal*.

The original " trench " however, the starting-point of all the discoveries, contained vitrified bricks, of the same shape and size as the inscribed tablets ; indeed, " une véritable couche de verre s'était formée sous l'action du feu." I was shown a fragment of an inscribed brick tablet which was said to have been found in the trench. It is thus quite impossible to dissociate the glass factory from the inscriptions. M. Reinach, however, cannot accept this conclusion ; degenerate Magdalenians might be able to write, but they could hardly run a glass-factory ! Describing the discovery of this " trench " M. Reinach says : " Meanwhile Fradin pursued his work and found an oval building the soil of which was paved with bricks, *one bearing an inscription* (*italics ours*). The inner walls of that small structure were entirely vitrified by fire. It may have been a (medieval ?) kiln, but that is now difficult to decide, because the visitors almost destroyed the walls before they had been examined by a competent person. As no bones were discovered, it cannot be considered as a tomb " (*Ant. Journ.* VII, Jan, 1927, p. 1). Does M. Reinach really ask us to believe that

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these fragile brick tablets, which have to be worked delicately out of the soil with a penknife, were used in the Middle Ages to pave the floor of a kiln?—that they would have been suitable for this purpose after lying (*ex hypothesi*) for about 4000 years in the soil?—or that even granting all these absurdities, the inscription on one of them would have survived to the present day? He admits that one of the “inscribed” tablets was used to pave the floor of a (medieval?) glass factory, but asks us to regard the inscription as Neolithic! And Dr Morlet, the excavator, tells us that he has always insisted that all the finds belong to one deposit,—and are therefore contemporary.

Finally, there are the engravings of animals. None of these represent extinct species; but some represent species that have not yet evolved, such as the dog-headed goat and the kangaroo-tailed deer, or which have never set foot in France, such as the buffalo. Professor Breuil remarks again and again that there is nothing Magdalenian about the engravings; and there is no greater authority on the period and its art (so much of which he has discovered himself). For me the engravings are the work of the man who laboriously carved the bone harpoon and who added the “letters” to it and the slate objects.

We see then upon what ground is based M. Reinach’s “conclusive proof” that the “true Magdalenian should be dated about 5000 B.C.”! Not a single trace of Magdalenian workmanship or even influence can be found by Professor Breuil, whose opinion is humbly shared by the present writer. But, it may be said, even granted this, the objects must be genuine since they are vouched for by eminent authorities who have actually dug on the site at spots selected by themselves and found objects. I will examine an instance of such a test excavation; but before so doing I must explain the existing conditions there. The site lies at the foot of a steep slope. The area dug over up to the present is quite small. Digging has been carried out there at many different points and upon no system. So far as I am aware, no plans or sections have been made—no records kept of the date of the discovery of the objects nor their depth—at any rate this information has not been methodically tabulated and published. The soil excavated has been piled up by the side of the holes made. The consequent chaos may easily be pictured by any scientific excavator. The excavations have been carried out not by workmen but by Dr Morlet and M. Fradin working with their own hands. As a reason for this procedure, and what appears to be the haphazard selection of points to dig, Dr. Morlet

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alleges the necessity of preserving “ islands ” of virgin soil where sceptics may resolve their doubts.

On the great day when M. Reinach himself visited Glozel, numerous objects were found with remarkable ease and rapidity—by digging at a point selected by M. Seymour de Ricci and approved by M. Reinach ; but M. Reinach is not content, “ C’est une tablette à inscriptions que je voudrais bien voir trouver ! ” Now note very carefully the procedure adopted. (Dr Morlet is speaking). “ Je demande à M. Emile Fradin où il a recueilli celle qui est en train de sécher. ‘ Car il y a généralement plusieurs ensemble ’ dis-je à M. Reinach. On abat, sur un côté du trou indiqué, une portion de terre végétale, recouverte d’herbes. J’explore au-dessous la couche archéologique. Tout à coup, une parcelle de terre à brique de couleur rouge est enlevée par la pointe du couteau. Sans savoir encore s’il s’agit d’une tablette, d’une poterie ou d’une idole, je dégage avec précaution l’argile environnante où se voient de nombreuses racines. Bientôt je recueille sous les yeux de M. Reinach et de M. de Ricci une tablette assez malléable, non revêtue de ‘ bouillie d’argile. ’ La terre de la couche archéologique qui adhère à ses parois laisse entrevoir plusieurs signes alphabétiques. ” (*Mercure de France*, 1 November 1926, p. 14).

M. Fradin points to the spot ; Dr Morlet digs ; and M. Reinach is convinced ! Such was the actuality that lay behind the “ memorable days ” when “ scientific control of the excavations ” at Glozel was exercised. “ On my return,” says M. Reinach, “ I immediately declared to the Academy that all the finds (as partly photographed in three brochures issued by Dr Morlet) were undoubtedly genuine and neolithic. ” But we search in vain for any tangible evidence of neolithic date ; and indeed we note a certain hesitation in M. Reinach himself. For in his letter to *The Times* he assigns the objects found at Glozel to 4000–3500 B.C., whereas in the *Antiquaries’ Journal* this date is lowered to 3500–3000 ! The one thing he is quite consistently dogmatic about is the Magdalenian character of the engravings—“ decadent, but incontrovertible ”—and this opinion is repudiated by the greatest authority on palaeolithic art, M. Breuil.

We conclude by repeating our opinion that the inscriptions, the engravings and the majority of the other finds are forgeries ; and that those who believe in their authenticity have been the victims of a hoax.

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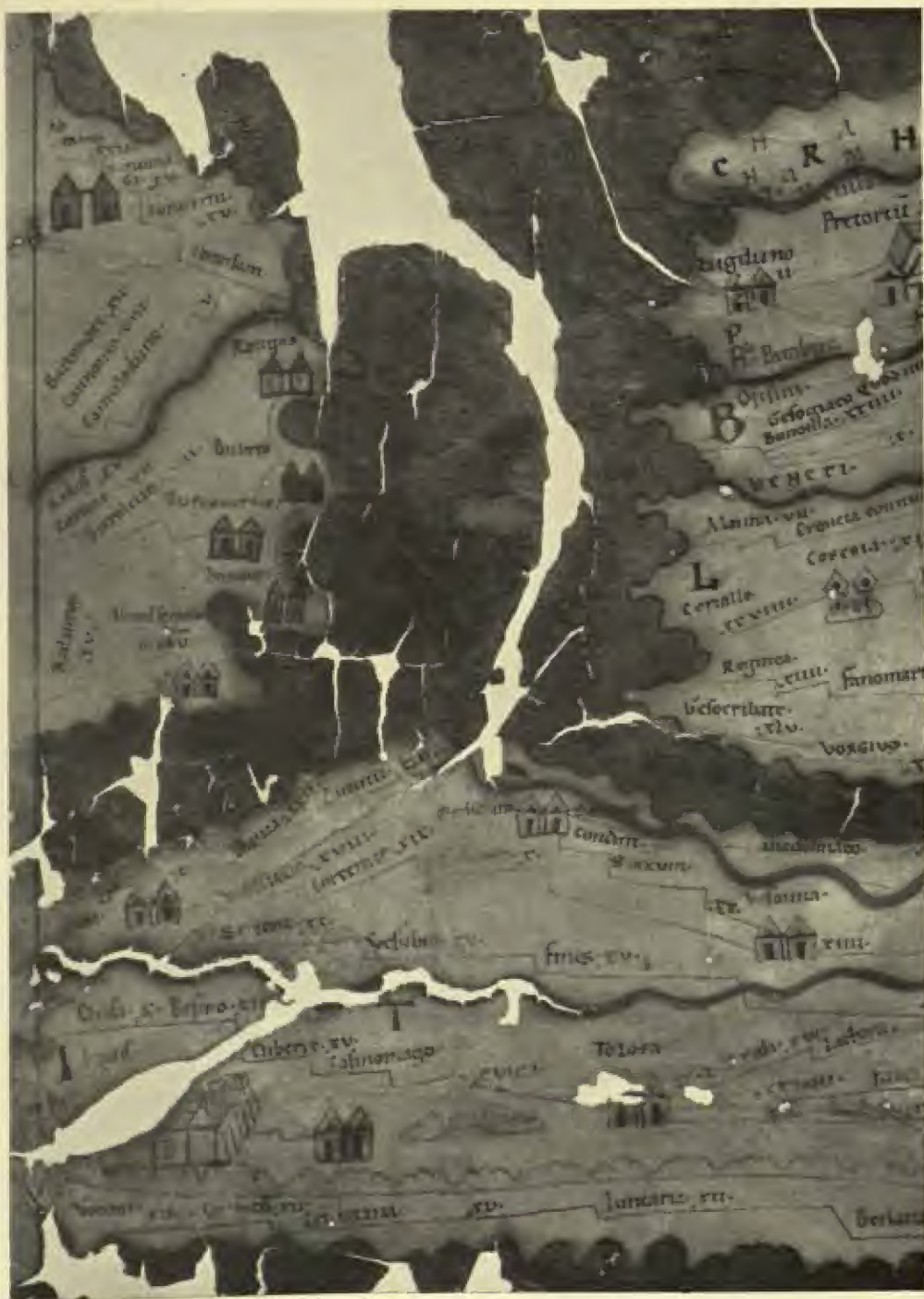
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Those who like a little quiet harmless fun should read Dr Morlet's "Lettre ouverte à M. O. G. S. Crawford" in the *Mercure de France*, 1 May, 1927.



THE PEUTINGER TABLE SHEWING SURVIVING BRITISH PORTION

Ancient Writers on Britain

by C. G. STEVENS, B.A.

THERE is a tendency, in these days of steadily increasing enthusiasm for excavation, to overlook the very considerable body of Greek and Roman literature extant which deals with the geography and history of the British Isles during the Roman occupation (43-410 A.D.) Few people have studied all the evidence; few history books pause to discuss the authorities for such familiar stories as those of Caratacus and Boudicca, or even to spell their names correctly. The reason is that many of these documents have never been edited in England, and no attempt has been made to collect them in handy form, and discuss the date, purpose, and value of each. The purpose of this article is to review the most important authors and estimate briefly the value of the contribution of each. There are no fewer than 49 writers in Greek and 79 in Latin who make direct mention of the British Isles; and though it is true that many of these do little more than mention them, or repeat the statements of previous authorities, we are still left with a number of independent sources of information.

The earliest geographers knew of no islands in the Ocean Stream, which they believed to encircle the earth; and although Herodotus, the first Greek historian (about 445 B.C.) had heard of the tin of the Cassiterides Islands, he was too cautious to admit that they existed. But when Pytheas, the famous Greek explorer of Marseilles, made his two voyages in the middle of the 4th century B.C., the existence of the "Bretanic Islands Albion and Ierne" (as Aristotle calls them) was established beyond doubt. They had already been fully discussed in connexion with the tin trade by previous authors when Polybius wrote in 260 B.C. It was this trade which first brought Britain to the notice of ancient writers; and ten years after the expeditions of Julius Caesar (55-4 B.C.), Diodorus Siculus is able to describe in some detail the route by which ingots of tin were conveyed in wagons at low tide from the mainland of Britain to Ictis (St. Michael's Mount), and from thence to the mouth of the Rhone. He is the first author to distinguish between the Cassiterides, which lie off the Galician coast of Spain, and the Bretanic Isles, and the first to note the triangularity of Britain.

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Scientific geography begins with Strabo (about 30 B.C.), who criticizes the position assigned by Pytheas to Britain, and his claim to have set foot in it. Ireland now first attracts attention, and Strabo speaks of "those who have seen the *Bretanic Ierne*." The next century saw the gradual infiltration of Roman goods and manners, and the decisive step taken by Claudius in 43 A.D. when the island was annexed and permanently garrisoned; and with the advance of Roman arms geographical knowledge improved. Pliny the elder, writing about 70 A.D., knew of the Caledonian forest, which, he says, marked the limit of the first 30 years of Roman advance; and Solinus, writing a little later, is so impressed with the size of Britain that he calls it "a second world." Shortly afterwards the great historian Tacitus wrote the life of his father-in-law, Agricola, who was Governor during the advance into Scotland (78-84): but, in spite of this splendid chance of first-hand evidence, Tacitus prefers to sacrifice geographical accuracy to literary effect, contributes nine names only, and has absolutely no grasp of the geography.

With Ptolemy (about 120) we first get a serious attempt at accurate mapping by means of latitudes and longitudes, though he himself admits that his system is based on the previous work of Marinus, now lost. Ptolemy's maps are also lost, but his index of latitudes and longitudes survives. What he calls his "first table of Europe" includes *Alvion*, *Ivernia*, *Thule* and the other islands; Ireland is taken first and the capes, rivers, tribes and towns given in order, and a similar account of Britain follows. At first sight the information seems to be derived entirely from coastal traders, as names like "High Cliffs" and "New Haven" suggest, but a knowledge of the interior also is shown in the accurate plotting of the positions of some of the inland tribes and towns. For many years Ptolemy was the sole text-book, and geography consisted in criticism of him: but his work is not free from errors, the most noteworthy of which is in making Scotland run due east from Northumberland.

After Ptolemy accurate mapping became the fashion, and before long road books were unofficially published for the benefit of travellers. There are two of these *Itineraries* extant, the earlier of which, entitled the "*Itinerary of Antoninus Augustus*," extends over the whole Roman Empire. It has been thought, since no places on the turf wall of Antoninus in Scotland are mentioned, that the document should be dated between 138, the year of his accession, and 142-3—the building of the wall. But the routes and stopping places are selected on no

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apparent scheme and the Scottish wall may well have existed at the time of preparing the itinerary. A more suitable date is 208, the date of the arrival in Britain of Caracalla, who also styled himself Antoninus, on a visit to his father Septimius Severus, who died at York three years later. Caracalla was a great traveller, and it has been suggested that this book may be a guide compiled under his auspices from the collected information of officials up and down the provinces. But the appearance of a Diocletianopolis and a Maximianopolis elsewhere in the Itineraries, and the tendency to keep inside a frontier of the time of Diocletian and not of Caracalla, seem fatal to this view : while the frequent repetitions, and the absence of some of the most important roads of Italy and the provinces, make it fairly clear that this cannot be an official document. The fifteen journeys in Britain are in no intelligible order, and by no means all of the 111 stations are important settlements : one is a farm in Suffolk, another an unknown inn between Salisbury and Silchester ; the journey from Richborough into Scotland turns aside to Noviomagus, which must be on a by-road, and goes through Chester and York instead of through Lincoln ; another goes from London to Carlisle through Norwich, Lincoln and York ; an important first century road, the Fosse Way, is scarcely used at all. Additional difficulties are caused by the uncertainty of the figures representing the distances from place to place, and by the emendations of successive editors.

The second road-book survives in map form and is called the " Table of Peutinger " (plate). It is drawn on a roll 11 feet long, of vellum sheets joined together, and takes in the whole of the known world. It is believed to be a 13th century copy of a 4th century original. Most unfortunately for us, the last sheet, which contained the title and most of Britain, has been torn off and we are left with only the east coast line between Norwich and Lympne, and the south coast line between Lympne and Exeter, which is far too short and contains only one other name ; of the 16 place-names which survive, 10 can be identified, and 6 are conventionally labelled as towns with double towers. The roads are drawn diagrammatically but the distances are filled in fairly accurately. The roads used are the Kentish section of the Watling Street of Antonine's second, third and fourth journeys, with that curious détour to Noviomagus of the second journey, and the Suffolk and Norfolk road of the ninth and twelfth journeys. But the details are not identical and the Peutinger map cannot be regarded as an illustrated edition of the Antonine Itineraries. Curiously enough most of the important 4th century forts on the " Saxon Shore " between Yarmouth

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and Porchester are omitted, and two by-roads are included which are not otherwise known and cannot be identified.

These two road-books do not attempt to give the shortest routes from place to place, nor to enumerate all the important towns, but record the information of travellers who visited villages as well as towns, and used the byway as often as the high road.

A record of the military geography of the Island is preserved in the illustrated register of the provinces called the "*Notitia Dignitatum*," which gives the rank, insignia, and personal staff of the officials in each. This document appears to have been compiled at the head offices in Rome and Constantinople in or about 426; to have been constantly used for reference, and to have been annotated and corrected in the Roman office during the next ten years. But it seems likely that much of the material dates from at least the end of the preceding century, and that the state of affairs in Britain is that of about 400 A.D. The Island is under a civil governor or vicar, and the five provinces of Britain, here named for the first time, have each a governor; and there are still Roman troops in garrison. These are of two kinds—a mobile field force under the "Count of the Britains," and two frontier garrisons, one under the "Duke of the Britains" along the line of Hadrian's Wall and scattered at important points below it (36 places are named in all and 12 of these are identified as Wall forts); the other, under the "Count of the Saxon Shore," is in garrison at nine forts between The Wash and Porchester to resist Saxon attack. The garrisons, with the exceptions of Legion VI at York and Legion II at Richborough, are all auxiliary units.

There are other points of interest in this register. British units are found serving as far afield as Illyricum, Thebais, Gaul, and Spain. There is a keeper of sacred treasures at London (called Augusta), and a keeper of a depot for weaving imperial garments at Winchester. The state of affairs in Britain as mirrored in the *Notitia* may have lasted as late as 410 but certainly not later, and though the actual submission to the Saxons is dated as late as 442 by the chronicle of Prosper Tiro, the lives of St. Patrick and St. Germanus preserve traces of earlier Saxon raids.

With one exception there are no contributions to our geographical knowledge of Britain during the Dark Ages: this exception is the work of "the Anonymous Geographer of Ravenna," compiled in Italy in the 6th century by a person who preferred to be nameless. It is little more than a list of names, some Roman in form, some native, of places

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and rivers throughout the world. The first 34 of the 278 names belong to south-western England, the geographer having last dealt with the north-west of Gaul. A few names are next given in the Marlborough-Winchester district, and a group follows in south Wales around Caerleon and Gloucester. After a small group in Kent and Sussex the geographer returns to the Welsh border, proceeds through central England to the Wall, along the Wall itself, above it and along the Wall of Pius, and finally into northern Scotland. Scarcely more than a hundred names in this long list are otherwise known, and the absence of distances and explanatory notes, the corruptness of the text, and the uncouth Latinity of the continuous passages, make certainty impossible; and the list is only useful as furnishing corroborative evidence for place-names already known. But it is the only list which preserves the names of the forts on both walls in order, the rivers of England, and the islands round it, and which adds the tribal names of some cantonal towns such as *Isca Dumnoniorum*, and *Noviomagus Regentium*.

Some notes must be added on the chief authorities for the history of the island.

Caesar, of course, gives us a full account of his two British expeditions, and we also possess some of the writings of contemporary critics upon them, but little is known of the period between 54 B.C. and 43 A.D. Strabo, indeed, mentions that the island paid import dues instead of tribute, and Tacitus has heard of inter-tribal wars, but Roman writers knew no details, and the doubtful evidence of coins is our only guide. The scheme of conquest was not abandoned for long. Augustus actually contemplated invasion three times, as Dio Cassius and Strabo tell us; Caligula got as far as Boulogne beach; and British princes sought the protection of Rome more than once. Unfortunately Tacitus' account of the Claudian invasion in 43 is lost, and we have to fall back on Dio's story, supplemented by the notes of Suetonius, Eutropius and Orosius: but the critical period between 50 and 85 is fully dealt with by Tacitus.

After 85, however, archaeology to a large extent takes the place of history; relevant passages become rare and not always trustworthy. The date and purpose of the Wall is the first big problem. Spartian assigns its building to Hadrian, before and during whose reign the tribes of southern Scotland and the Brigantes of northern England (according to Juvenal and Pausanias) had been giving trouble. The later wall of turf in Scotland is assigned by Spartian to Antoninus Pius, and archaeology

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supports both these dates. But literature gives us no further help until Dio and Spartian record the disturbances in the reign of Commodus (180-192), which resulted in a deputation to Rome from the army of Britain. In the next century the activities and death of Septimius Severus in Britain (211) are related by Dio and Herodian, and a number of inferior authors assign to him the building of a wall. But literature is silent until the last quarter of the 3rd century, during which the revolts under Probus are recorded by Zosimus, and the story of Carausius and Allectus by Eutropius and the Panegyrists. There is a slight improvement at the beginning of the 4th century, when the Picti appear for the first time in the Panegyrists, and Eusebius, Ammianus Marcellinus, and Libanius record the defeats of the Scots by Constantine I and Constans Augustus. There are two good sources for the latter half of this century in the Panegyrists and Ammianus : of these the former mention Theodosius' naval victories over the Saxons, the "reduction of the Scotti in their marshes," the prosperity of Britain, its corn, wine and wool, its temperate climate, and the absence of dangerous wild animals. Ammianus is also full of information. He gives the names of the invaders as Attacotti, Scotti, and two Pictish tribes, the Dicalydones and Verturiones ; he tells of the downfall of a "Count of the maritime tract" and a "Duke" ; he mentions corn, and pearl fisheries ; and he is the authority for the alternative name of London, Augusta. The authority for the revolution of Maximus during the reign of Gratian (377-83) is Zosimus, and for the state of misery which succeeded it, Libanius. Claudian refers to the recovery under the direction of Stilicho at the end of the century, and Zosimus and Prosper Tiro record the usurpation of Constantine in 407, after which date Britain was left to look after itself.

The final catastrophe is shrouded in obscurity, and of our two main authorities for the events between 420 and 449—Gildas and Bede—one is most unreliable and the other wrote 200 years after they took place. Gildas was a Welsh monk whose object was not to write history, but to deprecate the disturbances of the 6th century, in which he lived. Bede was a careful archaeologist and a historian of the first rank, but his historical sources were inadequate, and he lived too long after the "hiatus" to possess first-hand knowledge of it. The stories of the "groans of the Britons" and the three appeals to Rome should, therefore, not be taken too literally, and in default of reliable literary evidence we have to turn to archaeology for our knowledge of these troubled years.

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BIBLIOGRAPHICAL NOTE

English editions and texts of the documents relating to Roman Britain are conspicuously scarce, and only one attempt has been made to collect all the relevant passages and print a complete text of them with variant readings. This was in the *Monumenta Historica Britannica*, vol. 1, which has long been out of print: it is still obtainable from second-hand booksellers, but it is high time that its place was taken by a handier and more fully annotated book.

There are three good manuscripts of Antonine—D (10th cent.), at Paris (7230, A) P (8th cent.) Madrid (2 R, 18); and L (8th cent.) Vienna (181). It was first printed by Stephanus (Paris, 1512) and then by Aldus (Venice, 1518), and at intervals of about 25 years during the next two centuries. The British section was annotated by Talbot and investigated by Camden (1586), who frequently refers to it, and published by W. Burton (1658) and in Thomas Hearne's edition of Leland's *Itineraries* (1712). The fullest commentary of this period is Thomas Gale's, published by his son Roger in 1709, which includes many identifications of place-names and emendations of distance figures. Horsley's *Britannia Romana* (1732) made further changes and Luckombe's *England's Gazetteer* (1790) and Reynolds' edition (1799) introduced others.

These commentators had strayed so far from the original that Wesseling's collation of the MSS (1735) was the only reliable text until the middle of the last century, when Parthey and Pinder printed an accurate text of the whole document at Berlin (1848). This unfortunately has long been out of print, but the British section is reprinted and thoroughly dealt with in T. Codrington's *Roman Roads in Britain* (3rd ed. 1918). A careful study of Itinera v and ix may be found in *Journal of Roman Studies*, xiv (1924).

The only extant copy of Peutinger's Map is in the Imperial Library, Vienna. It was discovered by a Viennese scholar, Conrad Celtes, in 1507, and bequeathed to Conrad Peutinger. The best facsimiles and editions are in French: Desjardins (Paris, 1869), Rudens (Brussels, 1884), and Camille Julian *Geographie de la Gaule*, vol. 1. Miller's edition (Stuttgart, 1916) has a useful black and white reproduction of the whole map. The British section is figured in *Monumenta Historica Britannica*, and in Elton's *Origins of English History*, 1870. The only photographic reproduction appeared in the *Illustrated London News*, 29 November 1924 with an article, which should be read with *J.R.S.* xiv (see above), where part of it is reproduced again.

There are four MSS. of the Notitia: P at Paris (9661), parts of which were reproduced in Paris in 1921; V at Vienna (3103); C at Oxford (lat.misc.378); all of the 15th century; and one of the 16th century at Munich (10291), called M. C is the best, and can be seen in the show case at the Bodleian. The Notitia was printed at Basle (1552), Paris (1651), Venice (1729), and by Bocking at Bonn (1839). The standard text is Seeck's (Berlin, 1876), which is still obtainable. Seeck reproduces the illustrations in the text in black and white, and those of the British section are reproduced in colour in *The Saxon Shore* by Miss Mothersole (1924), who in this book and the *Roman Wall* (1922) gives a good popular account of the document, and prints the text. American editions of the British section are Fairley's *Sources of English History* vi, 4 (1899), and Merrill (1908). With the Notitia should be studied the cup found in Rudge Coppeice, Wilts., which is inscribed with five place-names in northern England in no intelligible order. It is recorded in the *Corpus Inscriptionum Latinarum* (vii, 1291) and figured in Horsley's *Britannia Romana*. The whole problem of the Notitia has been discussed in *J.R.S.* by Bury (vol. x), and R. G. Collingwood (vol. xii).

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There are three manuscripts of Ravennas: 13th century MSS. at Paris (4974) and Rome (Urb. 961), and a 14th century MS. at Basle (F.V.6). Porcheron edited the Paris MS. in 1688, and it was re-edited at Leyden in 1696 and 1722. The three MSS. were collated by Parthey and Pinder (Berlin 1860). The British section has only been printed twice in England; by Roger Gale (1709), who made a number of rather wild identifications and in *Monumenta Historica Britannica*, with variant readings. Modern writers tend to ignore Ravennas, but notes have been written on him in Haverfield and Macdonald's *Roman Occupation of Britain*, p. 191, Macdonald's *Roman Wall in Scotland*, and J. G. C. Anderson's abridged edition of Furneaux's *Agricola*. Haverfield also has an interesting essay on p. 289 ff. on the 'xxviii Civitates of Britain.' This and the career of Charles Bertram (pp. 77 ff.) should be read by all who study the Roman place-names of Britain.

Little has been done in the past hundred years towards the critical elucidation of Ptolemy's text. There is the standard work of Carl Müller, never unfortunately completed (vol. 1, part 1, 1883; part 2, 1901); but this seems to be all of any importance, apart from studies of very limited sections. The notes give variant MS. readings, but they are in Latin, and the topographical identifications suggested or quoted are often groundless. Other editions are those of Nobbe (Leipzig, 1898, three small volumes, still in print); and Wilberg (Books i-vi only; Essen, 1838-45).

Amongst works which deal with special sections of Ptolemy are the following:—
Rylands, *The Geography of Ptolemy Elucidated*, 1893 [deals specially with Great Britain].

B. F. Tozer, *History of Ancient Geography*, 1897.

Flinders Petrie, *Ptolemy's Geography of Albion* [Proc. Soc. Antiquaries, Scotland, 5 s, iv, 1917-18, pp. 12-26].

Ian A. Richmond, *Ptolemaic Scotland* [ib. id. vol. LVI, 1922, pp. 288-301].

PLATE I



WALLS IN BASALT COUNTRY

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facing p. 197

The 'Works of the Old Men' in Arabia

by FLIGHT-LIEUTENANT MAITLAND, Royal Air Force

THE walls and hut circles which are known to the Bedouins as "the works of the old men" lie about 120 miles to the east of the Dead Sea, in a southern extension of the Jebel Druze range through which the Cairo-Baghdad air mail passes, in the neighbourhood of landing grounds F, G, and H.

The Jebel Druze is a desolate range of mountains rising to from 2000 to 3000 feet above sea level. It consists of steep-sided flat-topped mountains of black basalt, the wadis and flat country between being covered with sand thickly besprinkled with huge black basalt boulders. Here and there the winter rains have formed lakes of sand which during the winter are morasses and during the summer hard flat glaring expanses of white sand, many as much as three miles long.

The valleys support a sparse growth of tough and gnarled camel-thorn and scrub; sufficient grazing for camels but for little else. Except for short spells during the winter, when there are occasional heavy downpours of rain, the nearest water is now at Kasr Azrak, some fifty miles to the westward towards Amman.

A better idea of the country will perhaps be obtained if it is described as seen from the point of view of the air passenger leaving Ziza for Baghdad. On leaving Ziza the country is rolling downlands rising to the east, to the Jebel Mughher. Traces of irrigation can plainly be seen below with many a ruin of ancient town and city, a sign of peaceful days long since past. In clusters over the downs are the grazing flocks of sheep, goats and camels of the Bedouin, with here and there a group of their black tents.

As Ziza is left behind, signs of irrigation cease, the country becomes more rugged, and black boulders and reddish earth gradually predominate. This is the ancient frontier of the desert; and Kasr Kharana, Kasr Amra and Kasr Azrak shew that the raiding Bedouin was as real a menace to the Romans and Byzantines as they are to the cultivator to-day. Kasr Azrak lies in a valley into which converge the winter rains of the mountains to the East; so it possesses pools of

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clear water throughout the year, and marshes in which wild boar, and duck and geese in season, are plentiful. This is the last water which is obtainable until the wells of El Jid and Rutbah are reached in Iraq, 230 miles to the eastward. A little to the eastward of the glittering dried salt flats of Azrak a number of winding tracks can be seen running across the route roughly north-west to south-east. This is the camel route down the Wadi Sirhan to central Arabia, from the Hauran to El Jauf, Hail and finally Er Riadh of Ibn Saud of the Wahabis. It is to this ancient route that Kasr Azrak owed much of its importance, and for that matter still does ; to the Bedouin Azrak, the Blue Castle is a meeting place of considerable importance—by day only be it understood. After dusk the Bedouin has far too great a respect for the Afrits of the old Roumi cohorts, which frequent the strongholds which they once held, ever to wish to spend a night near Kasr Azrak or Kharana.

Ibn Saud's men bent on laying desolate all that is not Wahabi, parties of adventurous Bedouin out to lift a few camels from the Beni Sukhr, Turkish officers on their way down to the Hedjaz, the Beni Sukhr on their seasonal move for grazing, and now and then an aeroplane with a defective engine or armoured car on desert reconnaissance or shooting party out for duck—all are attracted by the water of Azrak and nearly all hope not to meet their fellow guests.

However, we will hope that our engines do not give trouble and that we do not have to taste the waters of Azrak and be tasted by their equally famous mosquitos.

Shortly after leaving Azrak, the country becomes rugged and desolate ; black boulders everywhere glisten against the white sand or reddish grey earth ; and little conical flat-topped hills are seen on either side, whilst ahead occasional " mud " flats can be seen gleaming amongst the darker mountains.

As the mountains are approached, the plough track, the original guide for flying through this desolation from Amman to Ramadi in Iraq, becomes more tortuous, twisting and turning round little isolated precipitous mountains set amongst a chaos of black rocks. This is the " lava " country whose sharp coal-like rocks present an effectual barrier to motor-car and camel alike. The Bedouin when moving from one mud flat to another in search of grazing must keep to the narrow sandy track which winds between the boulders in the valley bottoms, and the car can only use tracks which have been laboriously cleared. These mountains are only visited by occasional parties of Druze

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tribesmen from the mountains to the north, whose tough little ponies cover the most impossible country at astounding speed.

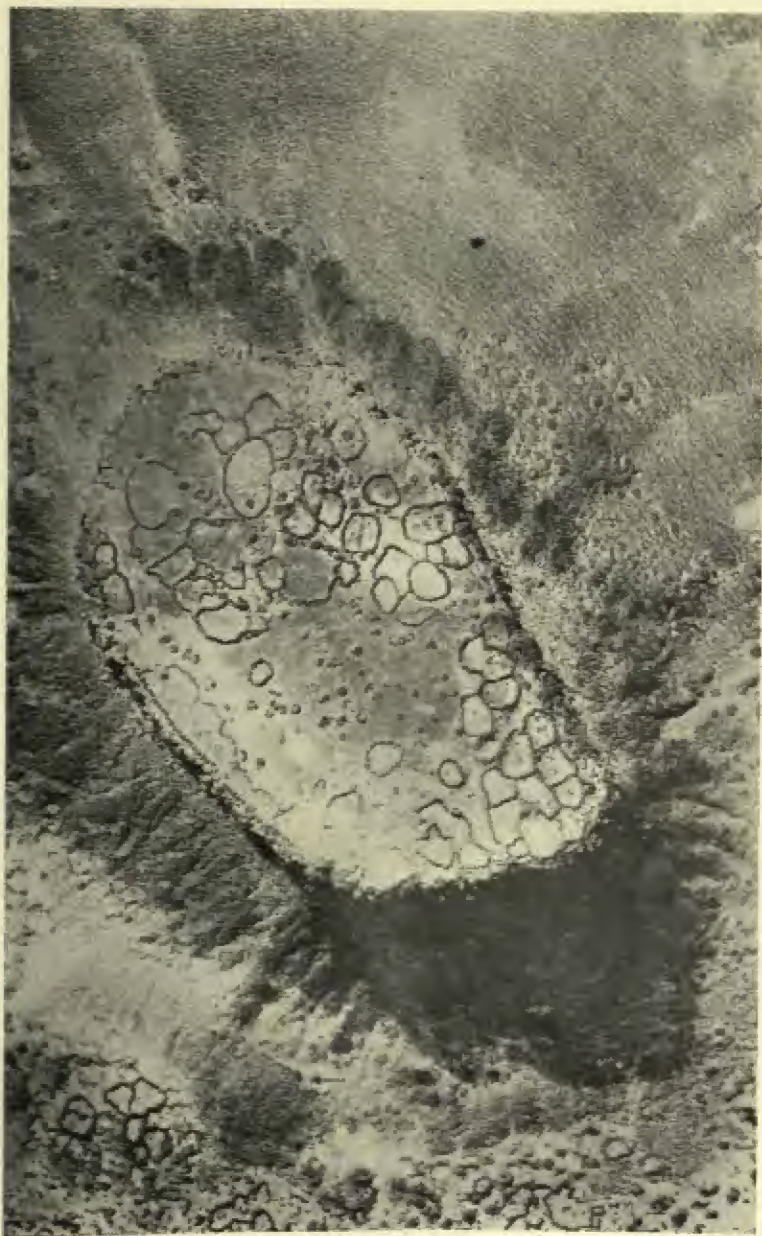
It is here that we first begin to notice little collections of stone circles and long lines of stones which in bad light can easily be mistaken for the plough track which we are following. In many cases the hut-circles cluster near the tops of steep-sided hills and from them two or three walls radiate down into the valley. In some cases the circles form a double wall of stones and the radiating lines of stones converge into the inner enclosure. There is now no permanent water supply to be found, but no doubt small winter crops of corn could be grown if the Bedouin did not despise such useful work. As has been said, the mountainous country is only occasionally visited by Druze tribesmen while the Bedouin only penetrates to the Wadis and mud flats amongst the hills. The mountain range forms a barrier between the Beni Sukhr tribe of Transjordan and the Ruwalla, who move with the seasons from the fringes of French Syria to the gravel plains of the desert to the southward and to the east of the Jebel Druze. There is little or no east and west traffic through the mountains here except for the air mail, armoured cars of the Royal Air Force and occasionally the Nairn mail motor cars, which follow the air mail route when the better route by Damascus is unsafe. This route has not been used in ancient times; if it had been, the clearing of boulders necessary for such a route would be easily noticed from the air. The hundred miles of almost waterless gravel plain to the Eastward was no doubt too great an obstacle to cross.

The camps should be divided into two types :—

- (a) those in purely defensive positions from the point of view of a general defensive scheme.
- (b) those which are isolated and were used possibly as cattle strongholds.

Thus all along the southern edge the hills are defended by 'rose shaped' enclosures connected together by a series of single walls, sometimes with other odd walls running out at unaccountable angles. The vast majority of such walls were, I think, defensive against man; and in many cases are in country up which cattle could not climb, except at occasional easier slopes. Sometimes they do not even appear to have a defensive value, but then it must be remembered one cannot get a very good idea of the lie of the land from the air. The enclosures are, I think, mostly single-walled, and few, if any, have 'fan walls.'

PLATE] II

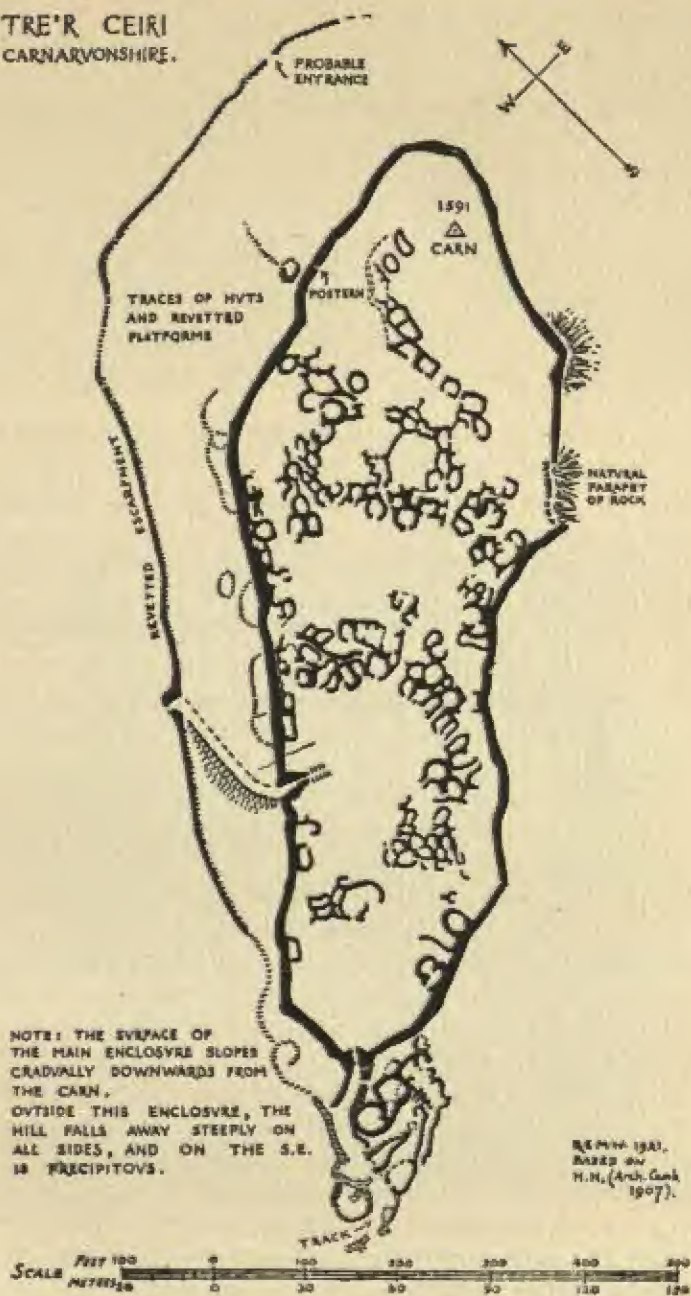


HILL-FORT IN BASALT COUNTRY, ARABIA

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facing p. 201

TRE'R CEIRI
CARNARVONSHIRE.



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Those of the second type occur in the scattered hills in the gap, which have many double-walled camps with 'fan-walls' extending out into the wadi bottom around them.

The walls of the camps follow the line of the hill and are often most irregular in shape—separate little circles within the main defence walls are quite common.

I should guess that many of the enclosures were about 300 yards and that the double walls would be about 12 yards apart, but of course it is very hard to say from the air unless one took special care to note it.

One double peak which I can remember well had a complicated system of fortifications. Each top had a camp, the saddle connecting them had communicating walls, and half way down the hill was a third wall which went round the whole.

Many of both the walls and circles are very complicated and difficult to understand, but those with 'fan walls' appear to be of more obvious use. Frequently these walls are seen radiating from a group of hut-circles on a hill top or hill side, and running for some two or three miles in a straight line. They are particularly conspicuous from the air, and in bad light the straight line of the wall at times resembles the plough furrow track which the air mail follows. The possible use of these walls was the subject of many discussions amongst air-mail pilots but the general opinion was that they were used to assist in driving cattle grazing in the valleys into the defended camps at the approach of hostile forces. This seems a probable use for them, as many actually lead into the inner ring of double-walled camps and extend down across valleys, so that a few horsemen could rapidly drive the herds up into the camp. The actual height of the walls is difficult to determine from the air, though judging by their shadows, they are not very high, probably no more than two or three feet;—they consist of boulders dragged into line. The photographs were taken at random and do not shew a good example of these radiating walls.

The circles and walls give the impression that they were used by a race of people who were at least partially settled, with herds and small crops, who feared the inhabitants of the richer land to the westward, and therefore fortified steep hills and the southern edge of the 'gap' into which the stronger people at intervals penetrated.

Whether there are other walls and circles in the mountains off the air mail route I am not in a position to say. Doughty mentions seeing hut-circles, but not walls, in the continuation of the same mountain ranges, some hundred miles to the south, and says that the

PLATE III



WALLS AND FORT IN BASALT COUNTRY

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WALLS AND ENCLOSURES IN BASALT COUNTRY

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THE 'WORKS OF THE OLD MEN' IN ARABIA

Arabs attribute them to the Nasrany or Christian, by which they imply that they are pre-Islam; they certainly have the appearance of being of great antiquity.

[For purposes of comparison a plan of the celebrated Welsh hill-fort of Tre'r Ceiri on Yr Eifl is reproduced on p. 201. The resemblance to the Arabian hill-fort shown on plate II will be noticed at once. Both contain within the encircling stone ramparts a collection of large and small stone-built enclosures. The slopes of both hills are in places precipitous. Thanks are due to Dr Wheeler and the Honourable Society of Cymmrodorion for the loan of the block.

The air-photographs were all taken at about 11 a.m. on 2 February 1926 from a height of 2000 feet, with a lens of the focal length of 6 inches.—Editor].

The Aryan Problem—fifty years later

by A. H. SAYCE

IN archaeology as in other branches of science we are only at the beginning of discoveries. New vistas are opening up to us and we are beginning to realize how little we know about the origin and early history of civilized man. Theories and presumptions, chronologies and criticisms, all are being revolutionized. In Egypt, in Babylonia, in India and in Asia Minor discoveries are being made which teach us that we are still only upon the threshold of knowledge about what is called "the remote past" and how insecure are the foundations upon which most of our assumptions in regard to the earlier history of culture really rest. Many of our assumptions, in fact, have nothing behind them except want of evidence, and excavation in Egypt alone has proved, time after time, how archaeologically valueless negative evidence must be. All that it shows is that scientifically conducted excavation and archaeological exploration are still in their infancy. Negative evidence has been a favourite weapon of argument, especially among German scholars, and we need not be surprised that theory after theory based or partially based upon it has broken down. It is merely a survival of the early Victorian belief that science had mastered all the secrets of the material universe.

Mr Gordon Childe has just published an interesting and valuable book entitled "The Aryans,"¹ which in the light of recent discovery once more attacks the old question: Where did the Indo-European languages originate and where did they develop? The title is an ambiguous one, for there was no Aryan or Indo-European race or even people. As Mr Gordon Childe is at pains to point out, the term "Indo-European" or "Aryan" is purely philological. But who first invented Aryan speech we shall never know: was it a single individual, or a family, or a tribe or a group of tribes? Did the so-called parent-speech come into existence ready-made, or did it develop consciously or unconsciously out of some other form of language?

¹ *The Aryans, a study of Indo-European origins*, Kegan Paul and Co., 1926.

THE ARYAN PROBLEM—FIFTY YEARS LATER

All this must remain in impenetrable darkness. All we can do is to take and analyse it in the earliest form recovered by comparative philology when it was already divided into incipient dialects.

This is the form which Mr Childe has present to his mind, and the object of his work is to connect this group of embryonic dialects with some particular race or people. For this purpose he invokes the aid, not only of philology, but also of anthropology and above all of archaeology. It must be confessed that the result is to illustrate the old proverb about not being able to see the wood for the trees. But the trees have as yet been only partially examined, on the outskirts of the forest for the most part, and the forest itself is still trackless. Mr Childe himself inclines to the theory which would see the earlier home of the speakers of the Indo-European languages in southern Russia but he also states the difficulties in the way of its acceptance. All of which we can be sure is that the inhabitants of southern Russia and the Caucasus were in contact with Mesopotamian civilization.

Since the Great War a good many archaeological facts have come to light which necessitate a revision of our old beliefs. Excavations in north-western India for example, have revealed the existence of a culture which was closely connected with that of Elam and Babylonia in the third millennium B.C. At Harappa in the Punjab and Mohenjodaro in Sind (400 miles distant) the remains of cities have been found with painted pottery like that of Anau, Susa and Sumer, architectural details which remind us of the early Sumerians in Babylonia, inlaid work in mother-of-pearl and ivory closely resembling that of primitive Sumer, and more especially small plaques with incised figures of bulls and the like as well as with pictographs of peculiar forms. Evidence of similar plaques with incised figures of exactly the same shape together with the same pictographs has been found in Sumerian Babylonia and at Susa.² At Susa, where numerous pictographic texts have been disinterred, we know their date; they belong to the period of the Third Dynasty of Ur (2418-2380 B.C.). What is most remarkable is that not only are the Indian and Sumero-Elamite pictographs the

² In the *Revue d'Assyriologie*, xxii, 2 (1925) Dr Scheil has published a clay sealing from Jokha (the ancient Umma) in Babylonia which has an impression of one of these plaques. The line of pictographs stands over a figure of the "Susian" bull in front of which is an altar. As the back of the sealing bears the marks of some linen or cotton material it must have been attached to a bale of merchandise which would probably have come from India.

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same or similar in form, the groups are sometimes the same, implying that a similar language was known in India and Elam.³

As far back as the third millennium B.C., therefore, there was cultural, and possibly racial, continuity between Babylonia and the Punjab. The intercourse was by land; we have as yet no evidence that it was also by sea. A cuneiform inscription has been found at Mohenjo-daro; and many years ago (in 1887) in a presidential address to the Philological Society I drew attention to a discovery made on the hills near Herat and recorded in the *Journal* of the Asiatic Society of Bengal (xi, pp. 316, *sq.*). Among the objects discovered was a Babylonian seal-cylinder of black stone with an inscription of three lines in cuneiform characters of the age of the Third Dynasty of Ur. The seal was bought by Major Pottinger, but afterwards lost, fortunately not before a good copy of the inscription had been made by the purchaser and published in the *Journal*. Though the language is unknown, the ideographs in it show that it follows the usual Babylonian formula and reads: (1) AN NIN-ZI-in (2) *Sulammebel* (3) *Khiti-gar* ARAD-na, "To the goddess of Life Sulammebel, son of Khiti⁴ her (or thy) servant." Herat is a half-way house between Elam and India.

There was thus continuity of culture and trade, possibly also of language or race or both, between north-western India and the valley of the Euphrates at the very beginning of the Bronze-age. And the intercourse was by land and not, it would seem, by sea. We need not wonder, therefore, if the painted pottery of the chalcolithic period in India, Elam and Babylonia should belong to the same type, or that similar pottery should have been found at Anau south-east of the Caspian, at Sakche-gozü north of the Gulf of Antioch, or even in the north-west of China. A similar culture appears to have prevailed from east to west in Asia in the latter days of the Neolithic epoch; man is a roving animal, time was no object to him in his younger days,

³ Sir John Marshall in the *Illustrated London News*, 20 September 1924 and 6 March 1926, and Messrs. Gadd and Sidney Smith, 4 October 1924. At Mohenjo-daro there have also been found blue glass bangles and bars of copper which may have been used as coins and so remind us of the early knife-coins of the Chinese. Inhumation with contracted burial was practised originally; this was afterwards superseded by cremation, the ashes being deposited in urns. Below the Buddhist site (of the third century B.C.) are seven or eight earlier levels of occupation. A "Babylonian Seal" from Harappa has long been in the possession of the British Museum and was published by Terrien de Lacouperie many years ago in the *Proceedings* of the Society of Biblical Archaeology. It has a pictographic inscription over a "Brahminical" or "Susian" bull.

⁴ Or less probably a title like that of "scribe."

THE ARYAN PROBLEM—FIFTY YEARS LATER

and the arts passed easily from one end of the continent to the other.

Between Asia and Europe, Asia Minor and the Mediterranean formed a link. We are beginning to realize how early in the history of civilized man he ventured on the sea, at all events if that sea were the Mediterranean. And his later history shows us that Asia Minor must always have been the natural bridge of his migrations from east to west or west to east.

As yet Asia Minor is, archaeologically, almost a blank. But the cuneiform tablets of the old Hittite capital at Boghaz Keui in Cappadocia, about 20,000 of which, including fragments, are at Berlin, while others are in Constantinople, are now throwing light on the history of the country and its population in the second millennium B.C. And already they are obliging us to reconsider and revise many of our old beliefs. Among the tablets there are some which relate to a people called the Akhkhīyawas, in whom Dr Forrer is certainly right in recognizing the Akhaeans of Greek literature. They are described as inhabiting the western coast of Asia Minor and one of their chiefs is expressly described as coming from Lazpa or Lesbos, in fact in one passage⁵ we read: "the god of the city of Lazpa who is the god of the city of the Akhkhīyawa." In another passage mention is made of the *Ayawalas* or Aeolian. In the 14th century B.C. Attarsiyas, whose name I have identified with that of the Greek Perseus, the founder of Tarsus,⁶ was in the pay of the Hittite king, and as the Hittites were an inland and not a maritime power his fleet of 100 ships was employed in the service of the Hittite king. He and the prince of Bigga (perhaps Pégai on the Hellespont), we are told, were not "servants," but semi-independent "generals" of the king.⁷

From the Hittite cuneiform texts, so far as they have been as yet published, I have gathered that the Akhaeans were at the time a purely Asianic power. Whether any of them were settled in Greece itself there is no evidence; those with whom the Hittite kings had to deal belonged to Asia Minor. And since the Ionians were of Asianic origin, the name itself being Asianic, while Greek tradition made Iôn (like Akhaios) son of the "tawny" Xuthos and not of Hellên, the

⁵ KUB p. 25, line 57. See the *Classical Review*, Nov. 1924, p. 164.

⁶ *Journal of Hellenic Studies*, xlv, 2 (1925).

⁷ KUB xiv, p. 7, l. 89. *Marēwanes*, the *mariyanni* of the Semitic texts ("mercenary generals"). Forrer reads *Kuirewanes* and identifies the word with *kuirwanas* "prince-lings," Greek *κοιρανισ*. In the Hittite script *ma* and *ku* have the same forms. The long vowel after *r* seems to preclude Forrer's identification.

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natural conclusion is that at which Ernst Curtius arrived many years ago on other grounds, that the famous " Ionic migration " instead of being from Greece to Asia Minor was in the converse direction. It was, too, in Asia Minor that the earliest Greek literature grew up and that Homer recounted the deeds of Akhaean warriors.

Now the Homeric poems imply a long preceding period of development. The Homeric dialect is exceedingly artificial and so also is the metre in which it is written. Both seem to demand the existence of a script rather than oral tradition. We now know that syllabaries were in use in Asia Minor and Cyprus at an early date as well as pictographic writing, to which the *σηματα λυγρὰ* of Iliad vi, 168 appear to make allusion. And the recent French discoveries at Jebel (Byblos) have pushed back the use of the Phoenician alphabet to a startlingly early date. Inscriptions in it have been found in a tomb of the time of Ramses II (1300 B.C.), the letters with three exceptions having already exactly the same forms as those of the Mesha text more than 400 years later. There is, therefore, no longer any difficulty in assigning the earliest Greek examples of the alphabet, discovered in the island of Thera, to a very much earlier period than epigraphists have hitherto ventured to do; to the age, in fact, when, as in the Iliad, Sidon had not yet been superseded by Tyre as the leading commercial mart.

The alphabet of Thera is closely allied to the Old Phrygian alphabet, though in one or two points, like the shape of the *iota*, it exhibits later forms. But there are evidences that the alphabet must have passed to Greece through Asia Minor. On the one hand, certain letters have been added to it which betray an Asianic origin; on the other hand both the Old Phrygian and the early Greek scripts mark the division between words and write the lines in the so-called boustrophedon fashion. So far as is known, there is only one other script in Western Asia, that of the Moscho-Hittite hieroglyphs, which employs this curious fashion of writing, and it is also a script in which the words are divided from one another by a special sign. Old Phrygian inscriptions have been found in the neighbourhood of Boghaz Keui, and another Old Phrygian inscription was discovered by Professor Garstang at Tyana, the modern Bor, which belongs to much the same period (the end of the 8th century B.C.) as the Hittite hieroglyphic texts which have come to light in the same district. There is only one explanation of this; the Phoenician alphabet must have made its way westwards through the medium of a people who had been previously accustomed to the use of the Hittite hieroglyphs.

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The Phrygians spoke an Indo-European language and the Greek writers tell us that they came from Thrace.⁸ Midas had his rose-gardens at Angora as well as in Macedonia, and the Paphlagonians were of Thracian ancestry.⁹ Herodotus (vii, 73), states that the Armenians were a Phrygian colony; this, however, applies only to the Indo-European conquerors who overthrew the old Vannic kingdom in the "dark period" between 660 and 530 B.C. The linguistic effect of this conquest was parallel to that of the Anglo-Saxon conquest of England; the older language of the country was superseded by Indo-European Armenian, and the names of the towns and villages became Indo-European also. But the conquerors were merely a military caste who were eventually absorbed by the conquered people and the present brachycephalic population preserves unchanged the old racial type.

Of the three skulls found by Schliemann in the second city of Troy it is significant that the two male skulls were dolichocephalic while the female skull was brachycephalic. On the archaeological side the culture of this second city was European and goes back to Thracian and Danubian origins. The earliest examples of bronze implements yet discovered to which a date can be assigned were found among its ruins. So far as our present knowledge goes, no tin is known to exist in Asia Minor, and the tin deposits of Bohemia and the Danubian region would have been the nearest sources from which it could have been obtained. But as practically no remains of the Bronze Age have been found in Thrace proper it would apparently have come by sea.

When and where was bronze first made? It must have been in some part of the world where copper and tin were found in close proximity and we now know that tin became known to the world of the eastern Mediterranean at an earlier period than was formerly imagined. At Tello in southern Babylonia the French excavators disinterred a tablet of the pre-Sargonic period, that is to say before 2750 B.C., on which mention is made of "5 manas of tin" (*Zabar kû-lukhkha*, literally "bronze [with] the shining-white metal"), while further mention is made of three objects containing 1 mana, 4 shekels of *urudu lukhkha*, "shining-white copper," 10½ shekels of lead, 4½ shekels of a metal called NE-KÛ and half a shekel and 21 grains of an unknown ingredient (SUG-GAN).¹⁰ In accordance with this, a survey of the high-roads (SIL-DAMALLA) of the Babylonian Empire compiled

⁸ Strab. 330, frag. 25.

⁹ See Strab. viii, 501, xii, 785; Scholiast to Apollonius Rhodius II, 181.

¹⁰ *Nouvelles Fouilles de Tello* I, p. 55.

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for Sargon of Akkad (2750 B.C.) states that "beyond" the Mediterranean sea, the western boundary of the empire, were the island of Kaptara (Caphtor) or Krete and "the Tin-land" (*anakû-ki*), as Dr Forrer was the first to point out. At that early period, accordingly, ships were already bringing tin to Asia from Spain, or, less probably, northern Italy.¹¹ But before maritime expeditions of the sort could have been sent to the distant West, the peoples of western Asia must have become acquainted with the metal nearer home.

We may conclude, therefore, that a knowledge of tin, and therefore of bronze, was brought to Asia Minor, and from thence spread to the rest of the civilized Eastern world, by traders or emigrants from Europe whose remains we have in the second prehistoric city of Troy. I propose to see in them the Proto-Phrygians.

Now the cuneiform records of the Hittite Empire have shown that before the 15th century B.C. there were peoples or tribes in northern Asia Minor whose language was not only Indo-European but Sanskrit. It was substantially the language of the Rig-Veda and its speakers must have carried it to India. They were breeders and trainers of horses and were apparently nomadic. The Hittite records have further shown that the governing class of the Hittite kingdom itself represented a military feudalism which resembled the feudalism of the Middle Ages in Europe. They had evidently conquered the native population like the Norsemen in later times and held their lands upon a similarly feudal tenure.

But the cuneiform texts have also revealed another and unexpected fact. The Official Hittite embodied in them is more than a mixed language; it is an extremely artificial one. There has been a large amount of borrowing from Babylonian grammar and vocabulary; the native language, for instance, had no prepositions, but they have been introduced freely from Assyrian and the texts are full of them. The prepositions *ana*, *ina*, *sa*, *gadu* and the like meet us in almost every line. The Indo-European element in both vocabulary and grammar is even greater than the Babylonian and so far as grammar is concerned is comparable to the Romanic element in English. Indeed it is difficult for any but the Englishman to estimate the real character of the mixture, and it is, therefore, not surprising that the original language itself has been claimed as Indo-European. What increases the difficulty is that the admixture proves how close and long-continued the contact between Hittite and Indo-European must have been; there were borrowings and, above all, assimilations on both sides and it will be long before we

¹¹ Schroeder: *Keilschrift-texte aus Assur*, 1920, no. 92, l. 31.

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can determine in many cases on which side the borrowing has been.

Professor Hrozný, the pioneer in the decipherment of the Hittite texts, was naturally impressed by the prominence of the Indo-European element which seemed to permeate both lexicon and grammar. But with the progress of decipherment we have learnt that much which was supposed to be Indo-European was due to mistranslation, and that Hittite grammar no longer wears the purely Indo-European appearance which seemed to belong to it at first. The root *da-*, for example, was referred by Hrozný to the Indo-European *da* "to give," and by myself to the Indo-European *dha-* (*dhe-*) "to place," but it now turns out that its true signification is neither "give" nor "place," but "take." So, again, along with Indo-European (or apparently Indo-European) grammatical suffixes, we now find that there are others which are Asianic. Thus the suffix *-t* denotes not only the 3rd person of the verb, but also the first as in *êskhat* "I was," *êslut* and *êslit* "I will be," as well as the second, and the second person plural of the imperative gives us the forms *êstummat* "seat yourselves," *kiddu-mati* "lie" and *sard-tuma* "divide yourselves." The suffix *-i* denotes both the first and third persons; from time to time no distinction is made between the singular and plural, while the suffix *-an* can stand for any person, tense, or voice, and occasionally there are no suffixes whatsoever (*esa* for *esat* for example). Friedrich has lately pointed out that the first person of the future (which is also an imperative) is expressed by the suffix *-lu*, *-la*, as in *aggallu* "I will die," *biskellu* "I will give," *uwalla* "I will see." But forms like *daiya-zi-las* "the thief," *linik-zi-el* "pardonner," where the nominal suffixes *-las* and *-el* are attached to the so-called third person of the verb are quite sufficient to convince the comparative philologist that we are not dealing with an Indo-European language, however much it may have been influenced by the analogies of Indo-European grammar.¹² The suffix *-zi* itself, which

¹² Equally convincing is a form like *paizzi-us* where the plural of the noun (*-us*) is affixed to the so-called third person of the verb. Thus in the Legend of the Great Serpent we read (KUB xii, p. 50. 3, 4) (*nu*) *paizzi-us khantezzius siunus iêr* "the gods who go in front effect (it)." No distinction, it will be observed, is made between the verbal and nominal suffixes in *paizzi* "he" or "they march" and *khantézzi(s)* "foremost." So in the Legal Code (II, 85) we read: *kuenzi-us khassus khuis-nu-zi-ya-(u)s* "the king may kill or (literally and) let (him) live." And *-zi* can denote the second person as well as the third; e.g. *istamas-zi* "thou hearest" (KT. v. 9. II, 17), while in forms like *kistan-zi-attat* (KUB II, 7, 46) we find a double verbal affix. The Asianic verbal suffixes *-r* and *-tari*, it may be added, were borrowed by some of the Indo-European languages.

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generally denotes the third person both singular and plural, is also found with the second. But our knowledge of the Hittite verb is still very imperfect; so far as I can discover it has no tenses or moods in the Indo-European sense of the terms any more than the Semitic languages, and until this fact is realized it will remain a constant puzzle.

We must not forget, moreover, that the verbal and nominal suffixes which present at first sight such a startling similarity to those of the Indo-European speech are also found in the non-Indo-European languages of Asia Minor and Armenia. The suffix *-t*, for example, is used for the third person of the verb in Vannic, in Lycian, and in Lydian; the first person is denoted by *-bi* (i.e. *-wi*) in Vannic, and it must be remembered that in Hittite, as in Babylonian, *m* had the value of *w* so that the Hittite *wakhnu-mi* "I cause to circle," for instance, would have been pronounced *wakhnu-wi*. So, too, in Vannic, in the declension of the noun the singular (and plural) nominative terminates in *-s*, the accusative in *-n* (or *-ni*) and the oblique case in the vowel of the stem. It is the same in Hittite except that the nominative and accusative singular of the noun can also be denoted by the suffix *-l* (Vannic *-li*).¹³

Only one satisfactory explanation of this is possible: Hittites and Indo-European speakers must have lived in close contact with one another for centuries. There would have been borrowing on both sides, and still more, assimilation of words and forms. In the artificial literary language which helped itself so freely to Babylonian words and forms this would have been consciously intensified. The conclusion is verified by an examination of the Hittite vocabulary, where, however, the percentage of words which can be regarded scientifically as borrowed from Indo-European is considerably less striking than in the case of the grammatical forms. Here it was rather the Indo-European languages, more especially Greek and to a less degree Latin

¹³ As Kretschmer writes (*Wiener Zeitschrift für die Kunde des Morgenlandes* xxi, p. 3) "Das nominativische *-s* ist eine Erscheinung, die das Indogermanische mit dem Finno-Ugrischen und verschiedenen vorderasiatischen Sprachen, nicht nur dem Kanischen (official Hittite) und Luvischen sondern auch sicher un-indogermanischen Harrischen (Mitannian) und mit dem Lydischen teilt." The suffix *-l* can be used verbally (as in Vannic) like *fabil* "he manufactured" in Lydian; e.g. in the Legal Code we have *khurkil* "he is guilty" (not the abstract "guilt" as it has been translated). *Khurkil* corresponds to forms like *Alisa-il* "he of Alisa," *Zibiskhuna-il* "he of Zibiskhuna" and in words like *Khattusi-lis* "he of Khattusis" (Boghaz Keui) we find the Indo-Europeanized suffix *-is* in addition. Cp. the Etruscan suffix *-l* which can similarly annex the suffix *-(a)s*.

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(through Etruscan) that were the debtors. In many cases, of course, it is impossible to say, at all events at present, on which side the borrowing lay.

But so far as my examination of the facts has gone it has led me to the conviction that it was in Asia Minor that the Indo-European languages developed; their origin is another matter altogether. And a further conclusion, coupled with the glimpses of early Akhaean history which the tablets of Boghaz Keui are beginning to give us, is (as I have already said) that Ernst Curtius was right in his belief that the so-called Ionic Migration was from Asia Minor to Greece and not conversely. Asia Minor was the earlier home of Javan.

After all it is only what the old traditions averred. They brought Pelops, who gave his name to the Peloponnesus, from Phrygia and made him the son of Tantalus whose name I showed many years ago was the same as that of the Hittite Tutkhaliyas and the Biblical Tid'al. Perseus, the founder of Tarsus, whose image stood at the entrance to Ikonium, was the son of Danaë and grandson of Akrisios, the Phrygian Kronos (according to Hesychius), while Danaos himself was a brother of the Egyptian king.

What language the Akhaeans spoke we do not know. Some of their names are Greek, but others do not seem to be Indo-European. Possibly their language was mixed like that of the Troad where Homer has recorded words and names in the respective languages of "gods" and "men." Nor do we know to what race the original speakers of the Indo-European tongues belonged. The Phrygians, indeed, came from Thrace, and Xenophanes tells us that the Thracians were "grey-eyed," γλαυκοὺς (like γλαυκῶπις Ἀθήνη in Homer) and "ruddy" (ἐρυθροίς) of skin.¹⁴ With this must be compared an important but little-known passage in the *Physiognomica* B 32 of Adamantius (415 A.D.), quoted from Polemo, a writer of the second century B.C. "But where the Hellenic and Ionic race has been preserved in its purity its representatives are naturally big men, broad, upright, compact, white of skin, blond, . . . with yellowish hair, soft and nicely curly; the forehead is square, the lips thin, the nose straight, the eyes liquid with much light in them, for the Hellenic has better eyes than

¹⁴ *Ap. Clem. Alex.: Strom.* vii, p. 302. Mr Casson (*Macedonia Thrace and Illyria*, p. 164) quotes a passage in Firmicus Maternus (*Mathes.* I, 1). "Omnes in Aethiopia nigri, in Germania candidi, in Thracia rubri procreantur." The Thracians were *rubri*, however, because they were sunburnt, but not ξυθροί or "bronzed."

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any other race."¹⁵ Unfortunately our knowledge of the Thracian language is of the scantiest ; among the few glosses, however, that have come down to us there are words like *λεβα* "city" (in Hesychius) which are not Indo-European.

At present we must be content with the fact that the Hittite official language was in such close contact with certain of the Indo-European languages, notably Proto-Greek, as to have been strongly influenced by them and to have influenced them in turn, and that one of these languages was Proto-Sanskrit. The basis of Hittite itself was an Asianic language called Luian in the texts (or Luvian as Forrer writes it), which has borrowed but little from either Indo-European or Semitic and in several instances indicates what had been the earlier form of a Hittite suffix before its assimilation to that of another tongue. Thus the nominative -s appears in Luian as -*nza* (e.g. *Tarkhunza*) in the singular and -*nzi* (e.g. *kuinzi*) in the plural, pointing to an original -*n's* (a) and -*n's* (i). So again, in Luian the substantive verb is *ás* with a long vowel which raises the question whether, after all, the corresponding Hittite verb has not been assimilated to an Indo-European root.¹⁶ That, I believe, has been the case with the word for "water" which is usually written *watar* in the Hittite texts. But the oblique case is *ueteni* (also *uwiteni*) and the nominative also occasionally appears as *uidar*. The alternative forms suggest borrowing or assimilation, and when we find that the corresponding Luian word was *uidanza* (with dative *uida*) our suspicions that there has been assimilation to the Greek or Phrygian equivalent are confirmed. At all events the word for "earth" has the varying forms *tegan*, *dagan*, *takkan*, and in spite of the Tocharian *tekne* is of Asianic and not Indo-European origin.

It is noticeable that among the multitude of Hittite deities none is Indo-European. The supreme god of the capital itself was Tessub, the Teisbas of the Vannic inscriptions. "Istar of Nineveh" and

¹⁵ εἰ δὲ τισι τὸ Ἑλληνικὸν καὶ Ἰωνικὸν γένος εὐφυλάχθη καθαρῶς, οὗτοι εἰσιν αὐταρκῶς μεγάλοι ἄνδρες, εὐρύτεροι, ὀρθιοί, εὐπαγεῖς, λευκότεροι τὴν χροάν, ξανθοί . . . ἔχοντες τειχωμα ὑπὸξανθον, ἀπαλώτερον, οὐλον πρᾶως. προσωπον τετραγώνον, χεῖλη λεπτά, ῥίνα ὀρθήν. ὀφθαλμοὺς ὑγροὺς . . . φῶς πολὺ ἔχοντες ἐν αὐτοῖς. εὐσφθαλμωτάτων γὰρ πάντων ἔθνων τὸ Ἑλληνικόν. I have seen shepherd-boys in the Peloponnesus of the same type ; their eyes were a liquid blue.

¹⁶ Forms like *e-es-khut* "I was," *e-es-lut* "I will be" indicate that the vowel was long. *E-es-khar*, "divine blood," as shown by the borrowed Greek *ἰχώρ* (which has no Indo-European etymology), would have had as its equivalent in Greek *ῖς* (-*χωῖ*) with long *iota*.

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Ea of Babylonia were borrowed from the Semites, but we look in vain for the familiar deities of the Indo-European speaker. Once, indeed, Agni, the Fire-god, is mentioned, but elsewhere it is the native Pakhkhār who is coupled with Miyasas the Water-God.¹⁷ The fact must be associated with another fact, that the royal names with the exception of two or three Babylonian and about an equal number of Indo-European ones are all Proto-Hittite. So, too, was the name of the capital (Khattusas "the silver-city," Boghaz Keui). From time to time we hear of a high official like the *rab mesedi* (commander of the body-guard?) "interpreting" (*tarqumeyaezzi*) to the king, and on one occasion when the king makes a progress from Arinna to the capital he "interprets" his orders to his secretary. Does this explain why, in spite of the strong feudal element in the state which must be referable to an aristocracy whose language was Indo-European, there is no trace of Indo-European theology? At any rate it would presuppose some Proto-Hittite influence upon the language, though our present knowledge of Proto-Hittite does not enable us to detect it, unless it is to be found in the extraordinary agglomeration of particles and pronominal fragments which characterize the Hittite sentence and remind us of the incorporating languages of America and Basque. Similar prefixes distinguish Proto-Hittite where they serve to bind the words of a sentence together like the prefixes of B-antu.

¹⁷ In ordinary speech *missa* (also written *mas*) was the word for "water." When the king requires water for washing his hands he is always said to cry : *kas* (or *ka*) *missa* "water here !"

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THE TOMB OF QUEEN HETEPHERES (PLATES I-II)

We mentioned in our last issue the discovery by Dr Reisner of the Tomb of Hetepheres, the mother of Cheops. Since then, Dr Reisner has given some account of his discoveries in a series of articles in *The Times*. These were published in four consecutive issues beginning 2 March. Each account was accompanied by illustrations. We wish to thank Dr Reisner for permission to summarize his articles. We wish also to acknowledge our thanks to the Editor of *The Times* for courteously allowing us to publish this summary, and for lending us two original prints for reproduction (plates I, II).

A word must be said about the outstanding importance of this discovery. It is unique. The date, according to Dr Reisner, is "about 3000 B.C. . . . This intact tomb presented for the first time in the history of Egyptian excavations an opportunity of studying the burial of a great personage of an early period, 1500 years older than the Royal Tombs of the New Kingdom."

The tomb consisted of a roughly rectangular shaft cut in the solid limestone to a depth of about 100 feet, just to the east of the Pyramid of Cheops. The strata of limestone were unsound until just above the burial chamber, and the extreme depth of the shaft is doubtless due to this fact. The chamber at the bottom, which measured 10 feet by 18 feet and was about 6 feet high, was evidently unfinished when the work was stopped. The tomb differed from any others found at Giza in being a secret one. It had no superstructure, and the two openings were hidden under the floor of the avenue leading to the pyramids of the Queens of Cheops. The opening first discovered was closed by a layer of plaster and beneath that closely packed blocks of limestone. The removal of this disclosed a flight of twelve steps leading into the main shaft. The shaft, like the staircase, was packed with limestone. At 10 metres down a niche was found in the west wall, containing the remains of a sacrifice, the skull and three legs of a bull wrapped in a mat, two beer jars and some charcoal. At various depths there were found two chips of black

PLATE I



GOLD CASING FROM CANOPY OF QUEEN HETEPHERES, ABOUT 3000 B.C.
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basalt, like the stone used in the pavement of the pyramid temple of Cheops. The actual entrance to the chamber, like the shaft, was packed with limestone.

Looking in from the entrance, the excavators saw a marble sarcophagus with its lid in place. Partly on the sarcophagus and partly behind it, lay the gold-encased poles and beams of a dismantled canopy (plate 1). On the western edge of the sarcophagus were spread several sheets of gold inlaid with faience, and upon the floor was a confused mass of gold-cased chairs, a set of eight alabaster toilet jars and the sheets of inlaid gold. Then followed the remains of a carrying chair and bed, bearing four inscriptions, which all read alike, "The mother of the King of Upper and Lower Egypt, the Follower of Horus, the guide of the ruler, the favourite one whose every word is done for her, the daughter of the god of his body, Hetepheres." The position of the "king's mother" was the most important which a woman could hold in the age of the pyramids. The next three titles are those of a king's wife, and show that Hetepheres was a wife of Sneferuw, but the meaning of the third title is obscure.

The process of excavation confirmed Dr Reisner's original belief that the deposit was a reburial. He considers that the original tomb of Queen Hetepheres was without doubt made by her husband, Sneferuw, beside his own pyramid at Dahshûr. It is probable that she outlived her husband and was buried by her son Cheops, for several of the boxes of objects are fastened with lumps of mud marked with the impression of the official seal of the funerary store-house of Cheops. The condition of the contents of the Giza tomb proves that thieves had broken into the one at Dahshûr. When the royal police discovered this, Cheops, no doubt, ordered the removal of the body and all the funeral furniture to Giza, and had it placed in a secret tomb prepared for the purpose. The tomb was still unfinished when the removal from Dahshûr began, and the masons apparently left in haste, dropping some of their tools. Five of these were found on the floor of the tomb. They were of copper and of two forms, one like a stone-punch, the other perhaps a crushing tool, and both of a pattern hitherto unknown in ancient Egypt. The floor was still covered with dust and chips from the mason's work and the boxes were placed on this rubbish. Everything from the original tomb seems to have been transferred, even the rubbish left on the floor by the thieves, and the dismantled canopy, which could not be set up in the low chamber at Giza, had been laid across the sarcophagus.

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Amongst the objects on the floor was a gold-encased box, the lid of which was inscribed in relief "the mother of the King of Upper and Lower Egypt, Hetepheres; box containing *deben*-rings." The exact meaning of the word *deben*, hitherto unknown, was given by the contents of this box, which proved to be two sets of ten anklets, inlaid with dragonflies of malachite and cornelian, and graduated in size to fit the swelling of the leg (plate II). Other objects were a copper ewer and basin, three plain gold cups and a copper needle. There were also seven razors, two of gold and five of copper, and seven knives, three of gold and four of copper. Both these implements were also found in flint. Many vessels of alabaster and pottery have also been found.

Most of the wood, both of boxes and furniture, was decayed, or destroyed by fungus, but some pieces are preserved within their gold casings though shrunk to about two-thirds their width and half their height.

The plain rectangular sarcophagus of alabaster, the simplicity of which was in keeping with the other furnishings, was found to be empty, but it is still hoped that the mummy may be discovered walled up in the tomb.

It is difficult to realize the great age of this tomb. To say that it is almost five thousand years old is true, but our imagination is not stirred. In the days of Cleopatra it was already as remote as Homer is from our times. The golden relics lay mouldering there when Moses led the Children of Israel from Egypt, and when Tutankhamen's magnificent obsequies were celebrated. Kings and prophets have passed, and for our eyes has been reserved the privilege of seeing for the first time the jewelry of the mother of Cheops, who built the Great Pyramid.

PALAEOLITHIC MAN IN SCOTLAND

The Alt nan Uamh or Burn of the Caves lies about three miles south of Inchnadamph in Sutherland. The caves, four in number, are situated at the base of a limestone cliff and are about $1\frac{1}{2}$ miles above the confluence of the burn with the Loanan. Their elevation is about 1000 feet above sea level. From the mouths of the caves a steep scree descends some 200 feet to the bed of the burn, which at this point is dry except during heavy rains.

The first cave yielded nothing of great interest, and it was therefore decided to abandon further work and commence excavations at the cave immediately to the east.

PLATE II



DEBEN-RINGS (ANKLETS) OF QUEEN HETEPHERES, INLAIN WITH MALACHITE, LAPIS LAZULI AND RED
CORNELIAN; ABOUT 2800 B.C.

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Accordingly, about the end of June, a start was made, and almost at once we were fortunate in finding the burrs and portions of the horns of several reindeer. Owing to the large number of these horns which were eventually found in this cave, it was named the Reindeer Cave.

Without going into technicalities, it may be mentioned that, broadly speaking, the upper deposits contained mammal and bird bones of a moderately remote period together with two objects made by the hand of man. One of these was an awl, about 4 inches in length, which had been made from a splinter of bone. The edges of the splinter were rounded and the flat surfaces highly polished through use. The other object was a large pin made from a cetacean bone. It was found in two pieces, about 6 feet apart. The head was formed of a large loop which originally had had another loop attached to one side of it, but when the pin was found, this latter loop was wanting. It is of interest to state that no similar pin is in the Scottish National Museum.

About 15 feet from the mouth of the cave, on the west side, a natural pillar about 3 feet in height was brought to light. This was connected with the side of the cave by a natural wall about 3 feet in length, of similar height and of about 1 foot 6 inches in thickness.

At the back of the wall a bay or recess was noted which extended to the back of the cave. In this bay a ceremonial burial had taken place in the red cave-earth—the first ever noted in a Scottish cave. Close behind the above mentioned wall, two flat stones set on edge and about 8 feet apart were observed. These formed a small enclosure in which a dolichocephalic skull resting on its occiput and facing the roof of the cave was found. Both upper and lower jaws were wanting and no teeth were noticed in connexion with this burial. Behind the skull four of the vertebrae and the sacrum were brought to light, but there was none of the larger bones of the body.

The phenomena connected with this burial are noteworthy and seem to present certain analogies to the Azilian-Tardenoisian ceremonial burial found at Offnet on the Danube.

The pin above described was found in association with this burial.

It is however, to the deposits of a much earlier period that the great interest of the excavation is attached. Beneath the layer of red cave-earth already mentioned was a layer, about 18 inches to 2 feet in thickness, of waterworn gravel and sand which had been washed into the cave by a lateral stream from the melting glacier which at that time filled the valley. In this stratum were found the horns and bones of the reindeer, the bear and many other animals. The horns of the

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reindeer were extraordinarily numerous, over 800 burrs being found. Practically all of these were "shed" horns and had belonged to young animals. All the animal remains from this bed were in a highly fossilized condition—differing in this respect from the bones found in the layer above.

At the extreme back of the Reindeer Cave a natural chimney was encountered which descended vertically about 10 feet 6 inches. This opened into a large cavern which was practically filled to the roof with a fine silt. Owing to this fact it was impossible to ascertain the full dimensions of the cave, but a measurement of about 94 feet in length was obtained, although this did not appear to be the extreme back of the cavern. As far as it was possible to determine, the deposit of silt above mentioned contained no vestige of animal remains except in the top 12 or 15 inches. Here again were found portions of reindeer antlers and, for the first time in Scotland, the remains of the cave-bear (*Ursus spelaeus*) and the Arctic fox (*Canis lagopus*). The bones in this inner cave were comparatively sparse, and the evidence thus obtained justifies the assumption that, at the time this cavern was filled with the barren silt, ice had entirely enveloped the neighbourhood; and the remains found in the top layer would seem to indicate that an amelioration of the climatic conditions had occurred, permitting animal life to advance into the hill country.

To return however, to the chimney; this was entirely filled with gravel and sand and contained many similar bones to those already mentioned. At a vertical depth of about 6 feet, in association with a large canine tooth of a bear and some of the large bones of this animal—all in a high state of fossilization—was found a fragment of a small horn artifact about 2 inches in length; possibly a portion of a spear-point. The importance of this find will be realized. Here we have evidence of man's existence in the north of Scotland at a time when ice, many feet in thickness, was covering the mountainous portion of the country and glaciers were slowly moving down the valleys.

It will no doubt be asked when the last ice-period terminated in this country. The problem is purely a geological one, but it may perhaps be taken that the final melting of the ice occurred many thousands of years ago. Thus we have proof for the first time of the existence of man in Scotland in the late Palaeolithic period. Heretofore it has been considered that the earliest evidence of man's inhabitation of this country was in Azilian-Tardenoisian times, and it is thus of very considerable archaeological and geological importance to have been

PLATE III



BRONZE HEADS FROM NEMI, MUSEO NAZIONALE (BATHS OF DIOCLETIAN), ROME

facing p. 221

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able to establish the fact of man's presence in the north of Scotland as early as the Magdalenian period of culture. Our conclusions have received corroboration from the great French archaeological authority, the Abbé Breuil, from whom we were fortunate in receiving a visit. Our work however, is not yet complete as we have other caves to examine. This we expect to do during the current year and hope to be able to throw further light on this highly interesting subject.

JAMES E. CREE.

[A full report of Mr Cree's paper, read at Edinburgh before the Society of Antiquaries of Scotland on 14 February last, will be found in *The Scotsman* for 15 February 1927.—EDITOR].

THE LAKE OF NEMI (PLATE III)

At a recent meeting of the Roman Historical Society, Signor Mussolini announced that the Italian Government, on the advice of a special Commission, was about to put in hand the work of recovering from Lake Nemi the two ships of Tiberius, which he described as "immense and superb vessels, with rooms and gardens and fountains, ornamented with marbles and precious metals and rare woods, all shining with gold and purple." This decision cannot but be a matter of the greatest satisfaction both to classical archaeologists and to artists. The artists and craftsmen who decorated his pleasure-ships for Tiberius, belonged to the very best period of Roman art, and some idea of their quality is given by the three bronzes rescued from Lake Nemi and now in the Museo Nazionale at Rome (plate III). The recovery of these alone would almost be worth the labour of recovering the ships, and the hope of other such treasures to follow will cause the liveliest interest in the operations. Of the historical and archaeological value of the recovery of the vessels, it is almost needless to speak. So complete a document of life in the early years of the Empire would have a unique interest and value.

The site of this hidden treasure is one of the most romantic imaginable. In the hollow of the Alban Hills lies The Mirror of Venus.

"The glassy lake that sleeps
Beneath Aricia's trees,
Those trees in whose dim shadow
The ghastly priest doth reign,
The priest who slew the slayer,
And shall himself be slain."

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The Arician grove, with its barbarous cult of Diana, its blood-stained priest and sacred tree, must have made a suitably romantic background for the cruises in which the Emperor Tiberius delighted, sailing the smooth waters in his magnificent ships, accompanied by his mistresses and favourites, and forgetting for a while Rome and all its multifarious business.

These two galleys were sunk in a storm during the reign of their builder, and attempts at their recovery have been made at various times. The first recorded essay was made, fitly enough, at the height of the Renaissance by the man who, more perhaps than any other, recovered the solid and austere spirit of Roman architecture and sculpture. Leon Battisto Alberti, architect to Sigismondo Malatesta, a tyrant, like the Tiberius of tradition, at once enlightened and brutish, was naturally drawn towards the secret of Lake Nemi. In the year 1447 he attempted to discover it, and, to that end, constructed an arrangement of pulleys and ropes, by which he managed to attach a cable to the prow of one of the vessels, which lay at a depth of 15 or 20 metres. He hoped, by this means, to draw it to the shore, but the cable broke, and nothing was brought up but a fragment of a colossal statue.

A century later Francesco Demarchi, the Bolognese military architect, donned a kind of primitive diver's helmet and descended to the bottom of the lake to survey the ships. He repeated this exploit several times although, on one occasion, a vein burst in his head and he came up with blood streaming from his mouth and nose. He brought up various fragments of wood and wrote a description of the vessels, noting, amongst other things, that the deck was paved with small red bricks.

Three centuries passed before any further serious attempt was made, but in 1827 the abandoned task was taken up by Annesio Fusioni, an hydraulic engineer, who seems to have been a person of a somewhat theatrical turn of mind. He determined to assume a diver's outfit and descend to the depths of the lake in the fashion of Demarchi. He needed an audience, however, for his daring exploit, and built a large platform to accommodate the crowd of scientists, artists and noblemen who were interested. In their presence he made repeated descents, bringing up several capitals of bronze pillars, fragments of marble pavement, the remains of a tablet inscribed "Tiberio Cesare," about 40 small terra-cotta tiles and numerous fragments of wood. In spite of this, however, Fusioni could gain no support for his enterprise, which completely ruined him, and at the end of his life he was obliged

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to make his living by selling pipes and tobacco boxes which he made himself of the wood he had brought up from the lake.

Another attempt was made shortly afterwards by Constantine Maes, a Flemish archaeologist. It was he who measured the vessels, the largest of which, lying nearest to the shore, is 140 metres long and 70 metres wide. Maes published articles and pamphlets on the subject, but no patron came forward to enable him to carry out the project.

In 1893, a certain Roman antiquary conceived the idea of fishing in the lake for treasures from the galleys. To this end he took up his abode in one of the villages on the shores of the lake and set to work in secret. He succeeded better than any of his predecessors, and it was he who brought up the Medusa head and the two bronze heads of wolves (plate III), which the Italian Government had to buy off him at a high price though they were, in fact, its own property. As soon as the news of his operations became public he was obliged to put an end to them. The whole question of the recovery, however, became the subject of public discussion, and was urged especially by Professor Emilio Gluria, who calculated that he could salvage the vessels for a sum of three hundred thousand lire. He did not, however, get the money, although the government of the day was inclined to listen with sympathy to his arguments. The question was once more dropped but, during the last three or four years, has been the subject of a vigorous propaganda in the Italian press, and now, it seems, the vessels are at last to be rescued, though not, apparently, by Professor Gluria's expedient of draining the lake. One cannot but hope that the ghosts of Alberti and the others may be invisible spectators of the work.

SYRIA

We have received from the Director, M. Charles Virolleaud, the following account of work carried out during 1926 by the Department of Antiquities :—

An expedition led by M. Passemar and having for its object the investigation of prehistoric sites, visited the Phoenician coast and the Middle Euphrates valley. In all, more than twenty new sites were discovered and more than two thousand objects of worked flint collected.

The excavation of the archaic cemeteries of southern Phoenicia, begun in 1924, has been continued by the Department of Antiquities. Amongst noteworthy discoveries is a large quantity of pottery of the

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2nd millennium before Christ made at Khirbet Sélim, in the neighbourhood of Tyre, and at Zautar Charkié south of Nabatyé. At Nabatyé itself a rock-cut tomb yielded a bronze arrowhead with a short inscription in alphabetic characters; it may be assigned to the 10th century before Christ, if not to a more remote period. This document makes a valuable addition to our knowledge of the primitive Phoenician alphabet. It reveals at the same time a new series of texts—that of the archaic inscriptions of southern Phoenicia.

At Byblos, work which had been discontinued since the end of 1924 has been resumed. Equidistant from the two temples there has been laid bare a block of masonry inside which were two niches, each containing a jar. These jars were full of bronze figurines mostly consisting of representations of soldiers armed with a dagger or a pike. A hundred and twenty in all were counted. A fine statuette of serpentine was found intact; it represents a seated woman, holding in her hands a roll of papyrus, on which are written the following words, in Egyptian:—'Royal offering to Hathor, lady of Denderah, who dwells in Kepen,' that is, in Byblos. An alabaster offering-table bears the name of Pepi II (25th century B.C.) whose name occurs several times elsewhere at Byblos. Amongst the fragments of hieroglyphic inscriptions there is one which appears to go back to an even remoter antiquity; it is a piece of an alabaster vase on which is preserved the left half of the name of Khufu, the Pharaoh whom the Greeks called Cheops, the builder of the Great Pyramid of Giza, who reigned over Egypt about the 30th century B.C.

In northern Phoenicia, in the neighbourhood of Ma'bed D'amrit, the Marathus of the Roman period, four hundred sculptured fragments have been collected. They belong to the 6th, 5th, or 4th centuries B.C., and fall into several groups, in which Egyptian, Cypriote, and Greek influence successively predominates. Several of them belonged to statuettes of Melcarth, represented standing, the right arm raised and the shoulders covered by a lion-skin.

An expedition consisting of the Reverend Fathers Poidebard and Dunand has explored the region between the Haut-Khabour, the mountains of Mardine and the Irak frontier. All the Tells to the number of about a hundred and fifty, which are scattered over this vast plain, were examined. On the surface of most of them were picked up many flint flakes and a whole industry of obsidian implements, going back to the beginning of neolithic times. Of these Tells the most important seems to be Tell Hamidi, 37 metres high, and equidistant

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from Sindjar and Mardine. It is covered with fragments of thick-sided unornamented vessels. An intact tomb, rectangular in shape and made of brick, contained pottery vessels, some of them with painted decoration.

Finally, the Tell of Nerab, 5 kilometres east of Aleppo—which had already produced two Aramean steles (now in the Louvre)—was methodically excavated by the Reverend Father Carrière, Professor at



the Ecole Biblique at Jerusalem. The upper layer of the Tell yielded a large quantity of Greek pottery (5th century B.C.) Below, at a depth of 7 metres, there was discovered a cemetery of the Persian and Neobabylonian periods. Amongst the objects discovered (which include statuettes of bronze and pottery, bronze and iron weapons, scarabs etc.), one may mention particularly a find of twenty-five

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cuneiform tablets ; they consist of accounts, dating from the reigns of Nebuchadnezzar and Cambyses (604-521 B.C.) This is the first time that documents of this kind have been found in Syria.

The results of the work carried out by the Department of Antiquities in Syria are published either in *Syria*, a Review of Eastern Art and Archaeology, or in the *Bibliothèque archéologique et historique* of the Department. Both are published by Paul Geuthner (12 rue Jacob, Paris). The eighth volume of *Syria* is in preparation, and the ninth volume of the *Bibliothèque* is about to appear.

Since the above was written an important discovery has been made at Zahr-el-Asi, 4 kilometres east of Restan, on the Orontes, in the district of Homs. (*Le Quotidien*, Paris, 7 April 1927). It consists of six fragments of an Assyrian inscription. No details are available at present. It was found by M. le Comte du Mesnil de Buisson. Two Hittite inscriptions are said to have been previously found at Zahr-el-Asi, published by the Reverend Father Ronzevalle.

ROCK PAINTINGS IN SOUTH AFRICA (PLATE IV)

Dr Impey's avowed object in bringing out a short work on Prehistory* is to stimulate further local interest in the Bushman paintings of South Africa. His main thesis is indeed that the paintings were for the most part not made by the Bushmen at all but by an earlier people. It is by no means an easy matter to condense even the parts of the subject relevant to the art into the short compass of a hundred pages and there has resulted, of course, a number of dogmatic statements some of which at any rate will not be accepted by the majority of prehistorians. On the other hand, as Dr Impey chiefly wishes to stir up people around him to study more carefully the extraordinarily interesting series of antiquities lying at their door, this does not perhaps matter so much. There is one point of criticism, however, that might be made. A very great deal of theory has been hung upon the slender thread of a hypothetical Grimaldi race. Verneau, in describing the old woman and the young man from the Grotte des Enfants at Mentone, suggested tentatively that the skeleton showed certain negroid characters. There is surely too little definite evidence as yet to

* S. P. Impey, M.D., J.P., *Origin of the Bushmen and the Rock Paintings of South Africa*. Juta & Co., Ltd., Cape Town and Johannesburg, 1926.

PLATE IV



ROCK-PAINTING AT IRANI, S. RHODESIA
Photograph of full-sized coloured drawing in possession of Dr. Impey

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deduce a Grimaldi race wandering all over Africa; Aurignacian and Magdalenian man belonged as a whole to the Neanthropic stock of which Cro-Magnon, Combe-Capelle, etc., are modifications.

But whatever criticisms may be levelled at Dr Impey's book, he can justly point already to a great success. Captain Dimmock, late of the Royal Engineers, now resident in Rhodesia, after reading it, happened to take a ride with a friend, Dr Williams, on his farm, Iram in the Victoria district of southern Rhodesia, about 50 miles from the famous Zimbabwe ruins. Lunching near a cave they noticed that the ceiling was covered with paintings (plate iv), which they at once proceeded to copy. The cave was evidently formed by the roof of a rock shelter fallen in, for the whole is almost filled by a huge boulder with a rounded top which looks as though it would just fit the roof if it were raised. The boulder is higher in front than behind, sloping gradually, its upper surface being parallel to the roof and about three feet from it. Above the middle of this boulder the painting stretches across the roof, and it would appear that the artist must have rested on his back and have painted the picture with a long brush. It was difficult to copy and impossible to photograph without a mirror. Captain Dimmock noted paintings of the normal Bushman type elsewhere in the cave, and there were signs that Bushman paintings had been obliterated to make way for the new figures.

While it is unsafe to dogmatize before visiting the site the reproduction certainly suggests something different from the normal Bushman art, and it would seem to be later in date. It has been suggested that the garments, musical instruments and attitudes of the women are early Egyptian. There is nothing impossible in the suggestion. The country has always been famous for its mineral wealth, and has been visited by traders from time immemorial. It is quite possible that at a very early date some prospectors from the north penetrated inland from the coast to the cave and left their mark therein, stimulated to do so, it may be, by noticing the earlier Bushman decorations. The earlier Bushman art is similar in style to the well-known Spanish (art group II) of late Palaeolithic date, to which it is linked by examples found in caves in Tanganyika, and at the Grotte d'In-Ezzan in the southern Sahara; it was undoubtedly painted by people culturally connected with the Upper Palaeolithic of Europe, although chronologically it may be a great deal more recent. Whether the artists were the direct ancestors of the present day Bushmen of South Africa or, as Dr Impey believes, an earlier pre-Bushman

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race, is another problem. Doubtless one day further investigation will give us the clue to this question.

M. C. BURKITT.

TIMBER CIRCLES

Readers will remember that in the last number of ANTIQUITY was a paper by Mrs Cunnington on the excavation of timber circles in Wiltshire. The site was claimed to be unique. Mr T. Cann Hughes, F.S.A., writes to the Editor calling attention to a wooden circle at Bleasdale near Garstang in Lancashire. Both the writer of the paper and the Editor knew about the Bleasdale circle, the urns from which are exhibited in the Manchester Museum, together with a plan. Although both are circles of timber, there are points of difference. The Bleasdale circles consist of a large outer circle, 150 feet in diameter, and a small inner circle whose diameter is half that of the other. The inner circle is not, however, placed concentrically but near the inner edge of the other. The outer circle consisted simply of a palisade of round logs of oak, the principals being from 2 to 3 feet in diameter and placed at intervals of about 13 feet. There was no evidence of a ditch or bank. The inner circle was formed of an outer ring or vallum about 5 feet wide and 9 inches high. It was composed of clay thrown outwards from the ditch, which was covered at the bottom with a curious flooring of poles placed parallel to one another, and so wedged together as to form a horizontal surface. Within this ditch and bank was a "low mound, now ploughed down, formed also of clay out of the ditch, having a diameter of 54 feet and a height of 2 feet in the centre. . . . In this (mound) lay concealed a circle composed of eleven rounded oak logs, each measuring 30 inches across. These had been let into the ground to a depth of between 3 or 4 feet. They formed a circle of 34 feet in diameter. In the centre of this, in an excavation carried down to a depth of 2 feet below the old ground surface, a group of urns was discovered in a rectangular hole, measuring 2 feet by 3 feet, which had been filled with wood-ashes. The two urns contained calcined human bones; inside one of them was a third smaller vase. The only other human relic found within this circle was a mass of charcoal 4 feet to the west of the group of urns." (Professor Sir William Boyd Dawkins in *Trans. Lancashire and Cheshire Antiq. Soc.*, vol. xviii, 1901).

The inner circle seems closely to have resembled a disc-barrow. The two urns are of the overhanging rim type assigned to the middle

PLATE V



THE DEVIL'S RING AND FINGER, MUCKLESTONE, STAFFS.
Ph. Thomas Williams

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Bronze Age, and the small cup is an incense cup. A plan of the circles and an illustration of the urns are published with the paper from which the above summary has been compiled.

GOLD HELMET

In Hearne's edition of Leland's *Itinerary* (3rd ed. 1768, i, 30), occurs the following passage :—

“ An old Man of Ancaster . . . told me also that a Plough Man toke up in the Feldes of Harleston [Harlaxton, Lincs.] a 2. Miles from Granteham a stone, under the wich was a potte of Brasse, and an Helmet of Gold, sette with Stones in it, the which was presentid to Catarine Princes Dowager. There were Bedes of Silver in the Potte : and Writings corruptid.”

From Thomas Allen's *History of the County of Lincoln*, 1833 (ii, 315) we learn that the helmet was “ deposited afterwards in the Cabinet of Madrid.” No trace of it can be discovered by those most likely to be familiar with its whereabouts.

The virtual loss of so valuable a find seems almost incredible. After being deposited in a ‘ cabinet ’ it is most unlikely to have been destroyed ; and even if not of gold, it must have been a most valuable discovery. One is tempted to guess that it might have been an enamelled helmet of the Late Celtic period. This might explain the ‘ stones,’ though it could hardly explain the ‘ writings corruptid ’ and the ‘ bedes of silver,’ unless they were British coins. Perhaps, if publicity is given to this note, the present resting-place of the helmet may be discovered. We would suggest to our readers in the Harlaxton district and in Spain that they might follow up the clues.

THE DEVIL'S RING AND FINGER (PLATES V-VI)

Mr R. Nicholls has contributed the illustration (plate v) which is reproduced, and a note on the monument. It is situated in the village of Mucklestone, in north-west Staffordshire, and the name seems to have some relation to the stones. About a mile away, at Norton in Hales, are some remains which undoubtedly once formed part of a burial-chamber. In the river Tern near by a prehistoric boat was found many years ago.

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The holed stone is an excellent example of a type which is rare in this country, though common in the burial-chambers of the Paris basin. The principal British examples recorded are the Men-an-Tol in Madron parish near Penzance, and the Tolvan (plate vi) between Gweek and Wendron near Helston. References to others will be found in Kendrick's *Axe Age*, pages 42 ff, and a full account of them is given in the third chapter. There appear to be two kinds of 'port-holes,'—one large enough for admittance and the other far too small. It is suggested that the latter may have had a magical significance as a 'thoroughfare for souls' of the departed, or for the insertion of offerings. In either case the holed stones are certainly associated with burial-chambers; and it seems probable that the Devil's Ring may once have formed a part of such, though now the rest of the chamber (and covering mound, if such existed) is absent.

The vertical grooves in the upright here figured, resemble those of the Queen Stone near Symonds Yat (see *Long Barrows and Stone Circles of the Cotswolds*, pp. 206-7). These are probably caused by rain channeling strata of unequal hardness. Similar grooves are to be seen on the Devil's Arrows near Boroughbridge in Yorkshire, where the height precludes an artificial origin.

The group of monuments in this district is geographically interesting, for it forms a possible link between the megalithic regions of Derbyshire and North Wales. Those which survive are few in number and little known—neither of those referred to in the first paragraph were marked on the Ordnance Maps until recently. The district is one which has long been extensively cultivated, and it may once have been as rich in megalithic remains as the place-names suggest. Notes about any others which may have escaped the attention of the Ordnance Surveyors will be welcomed by the Editor.

PLATE VI



THE TOLVAN, NEAR HELSTON, CORNWALL.
PR. A. D. HAWKIN, HELSTON.

Forthcoming Excavations

There is little to add to the information already published in our first number. Mr S. N. Miller will continue his excavations at York in September, continuing for at least a month. A report on last year's work will appear shortly. Dr Cyril Fox, Director of the National Museum of Wales, hopes to carry on his survey of Offa's Dyke, probably during July, starting at Bersham in Denbighshire and working southwards. The Carmarthenshire Antiquarian Society hopes to continue the excavation of the nave of the Cistercian Abbey of Whitland (between Narberth and St. Clears). Its Director, Mr Ernest V. Collier, will be in charge, as in 1926. An account of last season's work on the east end and transepts, together with a plan of the Abbey, based on the results of the examination by spade, appears in part 48 of the Society's Transactions.

It would add to the value of this section of *ANTIQUITY* if those of our readers, in any part of the world, who are in charge of excavation work, would send us the briefest occasional notes on their future plans ; adding (when possible) where the accounts will be published. Site and date will be enough.

Recent Museum Accessions

It has been suggested that occasional notes on recent important additions to museums would be of value to students. Such notes naturally cannot attempt to deal with museums outside the British Isles. For the following information we have to thank the authorities concerned.

BRITISH MUSEUM

Full information about important accessions will be found in the *British Museum Quarterly*, published by the Trustees ; this is an admirably printed and illustrated publication the first number of which appeared last year. (For the information of those wishing to subscribe

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it may be added that a sum of two pounds, sent to the Secretary of the British Museum, ensures the receipt of all numbers issued for five years, beginning with number one, or an annual subscription of eight shillings can be made).

No. 1 contains, amongst other notes, a description of a statuette of Socrates found at Alexandria (see plate). "In the face of this figure we seem to have a truer and more life-like presentment of Socrates than any of the previously known busts had given us." It is to be regarded as "the earliest known representation of the philosopher, dating from about the end of the fourth century B.C." We may congratulate the Museum on acquiring what is most certainly "a great and beautiful work of art." A photograph of the statuette appears as the frontispiece, and is here reproduced, by kind permission.

The feature of No. 2 is undoubtedly the Sumerian sculpture illustrated on plates XIX-XXI. The most striking object is a head from a marble statuette of a woman which, as Dr Hall justly claims, should rank among the most beautiful examples of Sumerian art. It is illustrated on plate XXI (a) of the number. By way of contrast from an artistic point of view may be cited the Persian lion (in outline) on plate XXIV.

No. 3 contains a report on excavations at Lubaantun by Mr T. A. Joyce; and some air-photographs of Ur (plates XLIV and XLV). As so often happens, the striking feature of these air-photographs is a purely irrelevant one—the spoil-dumps! The photographs are interesting because they show both the plan and the present state of excavations—what has been accomplished and what remains to be uncovered.

No. 4, the current number, contains (as frontispiece) a restoration of a Sumerian relief in copper, dated by Dr Hall about 3000 B.C. It was one of his own discoveries at al'Ubaid in 1919. The group is of the greatest interest but without much artistic merit. Some early (? 10th century) chess-men found at Witchampton, Dorset, are illustrated on plate XLIX. They have been placed on permanent loan in the British Museum by Mrs McGeagh. Other notes describe copies of Egyptian wall-paintings made by Mrs Nina de Garis Davies; and Carthaginian cinerary urns.



STATUETTE OF SOCRATES IN BRITISH MUSEUM

Reproduced from No. 1 of the "British Museum Quarterly," by kind permission of the Director

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In addition to the above the following list has kindly been supplied by the authorities concerned :—

DEPARTMENT OF EGYPTIAN AND ASSYRIAN ANTIQUITIES

Flint implements of the Fayûm Culture, discovered by Miss Caton Thompson, 1924-6.

Series of *dated* groups of beads from the Old to the New Kingdoms found at Abydos, 1925-6.

DEPARTMENT OF BRITISH AND MEDIEVAL ANTIQUITIES

Hallstatt and La Tène pottery from Park Brow, Cissbury (excavated by G. R. Wolseley, Esq.) and from Margate (excavated by the late Dr A. W. Rowe).

Pottery, stone implements and querns from stone circle on Ile d'Er Lanic, Golfe de Morbihan.

Large pottery vessel with 8 socketed bronze axes (out of an original 170) and bronze cake found inside it ; another large vessel and 93 socketed bronze axes found inside ; both from Brittany.

Pottery from site of Romano-British kiln near Farnham, Surrey (excavated by Major Wade).

DEPARTMENT OF CERAMICS AND ETHNOGRAPHY

Stone implements from Jos, Bauchi Province, northern Nigeria (collected by A. Stanley Williams and others), and from various other districts in Nigeria ; also from the Tabel Belat, southern Morocco (collected by Professor C. G. Seligman). Others, including ' pygmies ' from vicinity of Newcastle, New South Wales (collected by D. F. Cooksey).

ASHMOLEAN MUSEUM, OXFORD

The Report of the Keeper for 1926 contains references to many accessions of great interest. Amongst others are " about 270 things from Kish and Jem'd en-Nasr (Iraq) ; two large tomb-groups and many detached objects from the Egypt Exploration Society's excavations at Abydos " ; objects from the Fayûm excavations and from northern France.

The objects from Kish and Jem'd en-Nasr represent Oxford's share of the spoils of the joint Oxford and Chicago Field Museum's

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excavations. "The chief feature of our allotment consists unquestionably in the tablets. They form the largest collection of early Sumerian pictographic tablets known up to the present, and fortunately many of them are in excellent preservation. They still await decipherment."

The Fayûm objects (excavated by Miss Caton Thompson under the auspices of the British School in Egypt) "consist of stone implements and weapons (rubbers, scrapers, hammers, mullers, celts, cutting-tools, knives and arrowheads) a harpoon and an arrowhead in bone, and some sherds. The 'Solutrean' attribution of these objects is a matter of dispute, some authorities regarding them as quite late Neolithic.

The additions to the West European section are numerous and important. Some of the best were obtained from the collection of the Comte Aveneau de la Grancière. Amongst these is a "tomb-group. . . from the tumulus of Saint-Fiacre, Melrand, Canton de Baud, Morbihan, excavated in 1897 (Bull. Soc. Polym. Morbihan, Nov. 1897). The find contains numerous bronze implements, namely, two flat axes with wide-splayed blades, and several daggers or kindred weapons, some sadly deteriorated by oxidization. One has a bronze haft and pommel, while another had originally a wooden handle studded with minute gold pins, as in specimens from Wiltshire [see Colt Hoare, *Ancient Wilts*, 1812, i, 203, plate xxvi; description of the Bush Barrow near Stonehenge. The gold objects from this barrow are now in the British Museum on loan; but electrotypes of them, together with the bronze and other objects from the barrow, are in the museum of the Wiltshire Archaeological Society at Devizes]. Some of these pins are preserved in a fragment of wood, and others are loose. Other implements were determined, from the direction of the grain of the wood present on them when found, to be halberds. For the history of commerce along the Atlantic coast an oblong amber plaque-bead, nearly 2½ inches long, and fragments of a vase (?) of silver (not bronze as stated in the original account) are both significant and suggestive." A hoard of five looped and socketed bronze axes, found at Treméoc, Finisterre, in 1893, contained one of Cornish type which is "unquestionably of British fabric." Breton axes have been found in England, and it is interesting to see the evidence of exchange from across the channel.

The Assistant-Keeper, Mr E. Thurlow Leeds, F.S.A., has added the objects found by him on the site of a Saxon village at Sutton Courtney, Berks. "A second report on these excavations will appear in the next volume of *Archaeologia*."

Reviews

AN INVENTORY OF THE HISTORICAL MONUMENTS IN HUNTINGDONSHIRE. (Royal Commission on the Ancient and Historical Monuments in England). H.M. Stationery Office, 1926. 35s.

THE VICTORIA COUNTY HISTORY OF THE COUNTY OF HUNTINGDON. Edited by WILLIAM PAGE, F.S.A., and GRANVILLE PROBY, M.A., F.S.A., assisted by H. E. NORRIS, F.Z.S. The St. Catherine Press, Stamford street, Waterloo, S.E. 1926. 63s.

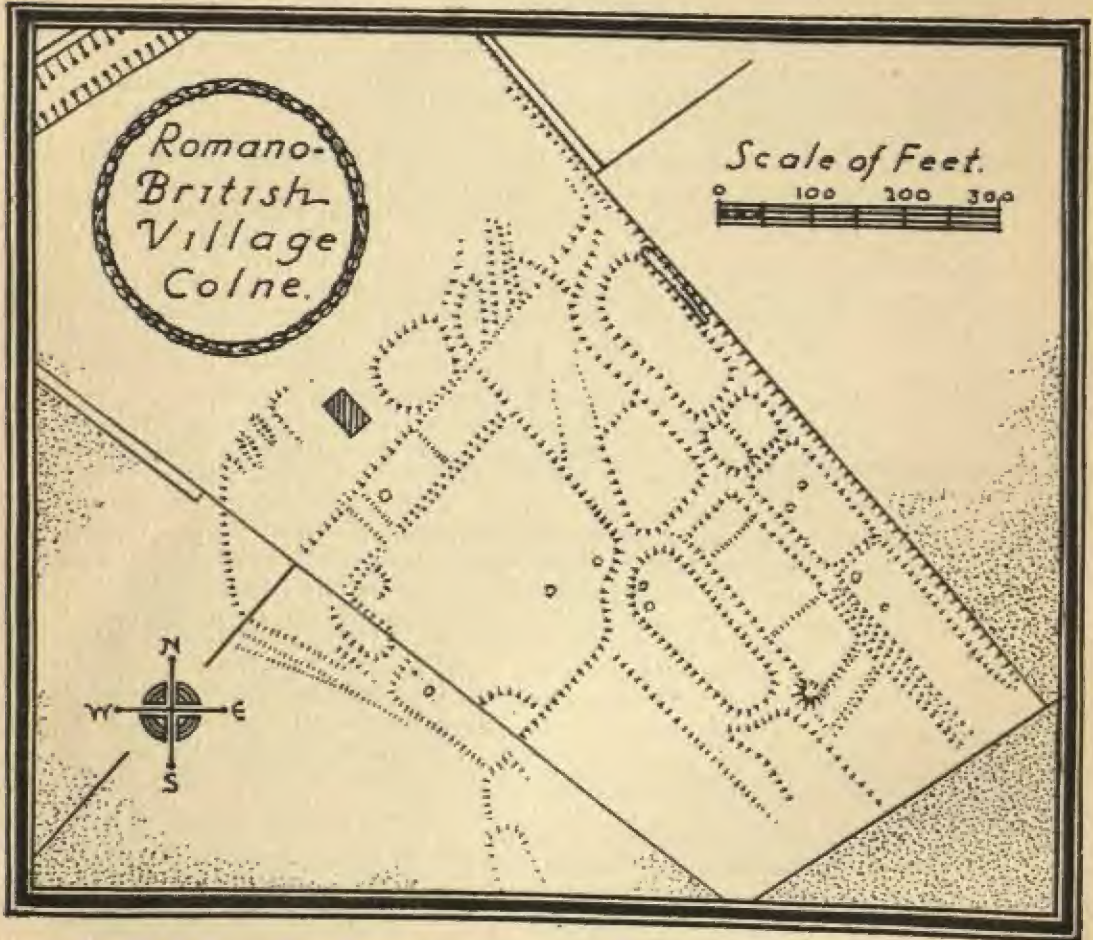
Huntingdonshire has been fortunate in the splendid volumes recently devoted to it. In addition to the two now under review, the English Place-name Society has issued (as their third volume) a very full and, of course, scholarly account of the place-names of the county. The harvest is abundant and proves what interest even a dull subject—and Huntingdonshire as a county *is* dull—may excite when properly handled.

The standard of the Royal Commission is a high one. It represents perhaps the high watermark of scientific archaeological survey, and proves, if proof were needed, that English archaeologists need not go abroad to learn their job. The essentials—such as meticulous accuracy, judgment, and technical skill—may be acquired in our own country. The volume before us proves further that black and white plans and drawings may be both useful and beautiful. (We purposely exclude the coloured index-map which is neither). The little plans which occur on almost every one of the 310 pages of the Inventory are really superb. They are not dully mechanical but obviously drawn with enjoyment; consequently they please the reader. They will continue to please readers when the villages they represent have ceased to do so; and when the ancient monuments they record are hidden (as is the most intimate sanctuary of Avebury) by ramshackle garages. The introduction contains an admirable summary, by Dr R. E. M. Wheeler, of Romano-British life in the county. There are no less than 166 half-tone plates, all very well printed from excellent photographs specially taken for the Commission.

The two illustrations which we reproduce here (by kind permission of H.M. Stationery Office whose courtesy in lending us the blocks we wish to acknowledge) will give our readers some idea of the general standard of excellence attained. The Romano-British village at Colne is remarkably unlike the sprawling, irregular settlements of Wessex. It reflects a more orderly mind and might even suggest that the Roman discipline had influenced the designer. (The portion shown on the plan is probably only a fragment, preserved from cultivation by a miracle). There must be innumerable similar sites awaiting discovery by observation from the air; for ploughing and sowing, while they may level the banks, must assist in revealing the plan from above. Here is a fascinating pursuit for the amateur airman in search of something both old and new. The region is rather remote from the photographic activities of the Royal Air Force; and it is virgin ground.

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The star-shaped earthwork at Horsey Hill is that *rara avis*—a genuine Cromwellian earthwork. So many prehistoric hill-forts have wrongly been named after Cromwell by rustic tradition that it is refreshing to find one such at last. Curiously enough, but little seems to be known about it, and neither it, nor the other at Earith, have been associated locally with Cromwell's name. Both are in good condition and will henceforth be protected from destruction.



The VICTORIA COUNTY HISTORY is an undertaking which is not in any way assisted by the Government. Its aim is to codify all that is known about each county, five or six volumes being devoted to each. It has become a national institution, worthy to rank with the Dictionary of National Biography, the Oxford English Dictionary and the volumes of the Rolls Series. There are special articles on geology, archaeology, natural history, sport and so forth, the later volumes being devoted to topographical descriptions

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of each parish with their medieval history, fully documented. The present volume maintains the high standard of the past, and even raises it. The article on Early Man, by Dr Cyril Fox, is not merely a dry catalogue of finds, but also what the title implies—an account of Early Man. (The corresponding articles in earlier volumes have not always achieved this most necessary combination). Perhaps the most welcome innovation is the successful attempt to show the natural vegetation of the county, on the maps of 'Early Man,' Romano-British remains and Earthworks. Forest land is coloured dark green, and covers by far the greatest area; fen or marsh is shown light green; and open country is left white. Such a restoration is perfectly legitimate and helps materially to explain the distribution of 'human' remains. It is to be hoped that the practice will be continued; and if we might, in anticipation of this, offer a suggestion, it would be that other types of vegetation should be added, if and when required. It would be desirable for instance to distinguish, say in Kent, between the dense and often waterlogged, woodlands of the Eocene and Wealden Clays and the less heavily timbered bush-country of the uplands capped with clay and loam. A subdivision of 'open country' into barren, gravelly, or sandy heaths and grassy (limestone) downs would also be useful. (These are not criticisms of the present volume, but suggestions for future ones).

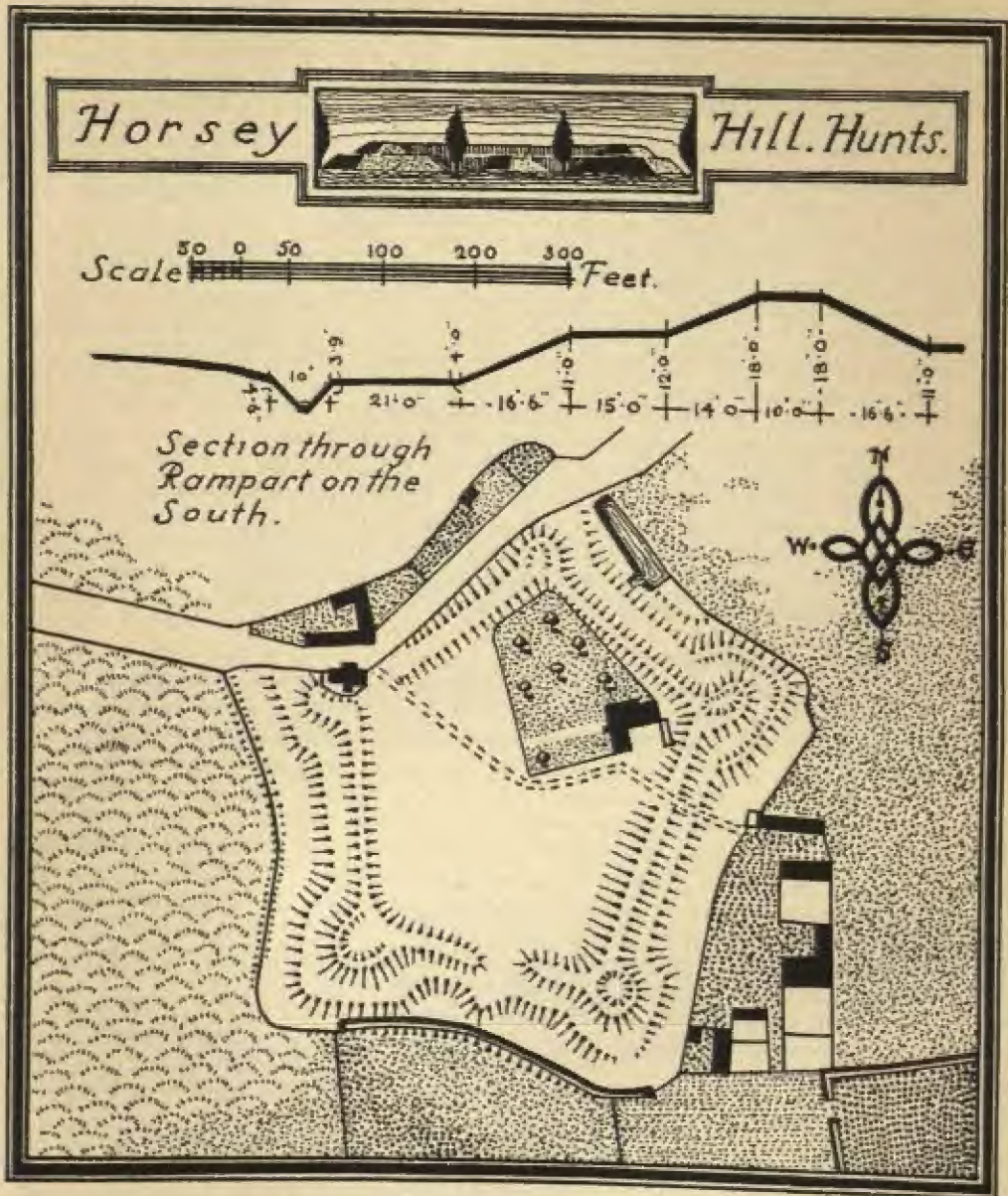
In pre-Roman times Huntingdonshire was almost completely covered by dense forest and fen, the only open country being the sandy and gravelly heaths bordering the Ouse and its tributaries. Consequently it has yielded few remains earlier than the middle of the Bronze Age; and we may suppose that throughout prehistoric times, and perhaps even after them, wandering bands of hunters frequented the forest hinterland. They have left their flint arrowheads behind them, and but little else. The dead level of barbarism probably survived until the Saxon invaders had consolidated their settlements.

There are some remarks, however, which are open to criticism. The statement that "the climatic conditions during the Neolithic Age were much the same as exist to-day, possibly with rather heavier rainfall" should have been omitted. It is in direct opposition to the views of Mr C. E. P. Brooks, the leading British authority on climates of the past: according to him the period 3000-1800 B.C. (approximately) was *drier* than the present. However, there is little else to criticize, and much to praise, in Dr Fox's article, and we hope he will write many other "Early Man" articles.

We have devoted so much space to the prehistoric period, that our remarks on the other sections must be briefer than the subjects deserve. Miss Taylor's article on "Romano-British Remains" (over 50 pages—a monograph in itself) maintains the standard of scholarship and completeness set by the late Professor Haverfield. The description of the Nene Valley potteries, and the reproduction of Artis's plans, is a valuable feature. The "Ancient Earthworks" article, by Mr S. Inskip Ladds, is mainly concerned with homestead moats, whose distribution is an interesting commentary on that of the Roman and pre-Roman sites. There are no hill-top camps, because there are practically no hill-tops! To do justice to these various articles would require a separate review for each and we must apologize to the authors for the very inadequate treatment of their labours.

It would be a convenience if the name of the writer could be given at the head of the article for which he is responsible. It is tiresome to be obliged to refer to the index. We would also suggest that the index would be easier to use if the main subjects (such as 'Natural History,' 'Religious Houses') were printed in bolder type than their subdivisions. Indenting, by itself, is confusing when the list of subheadings is so long.

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The geological map shows the solid geology ; a drift map should have been added—or substituted—and would have been found useful by the reader in connexion with the prehistoric vegetation-maps.

We cannot conclude without congratulating the editors and readers of these volumes upon a splendid achievement, carried out under difficulties.

A HISTORY OF THE ANCIENT WORLD. Vol 1. The Orient and Greece.

By M. ROSTOVITZEFF, D.LITT. Translated by J. D. Duff. Oxford University Press, 1926. 21s.

Professor Rostovtzeff himself defines the aim of his book in its preface, where he says of it, " My chief object was to collect therein those fundamental ideas and views, concerning the main problems of ancient history, which I had gained from long years spent on the study of the subject. . . I publish the book without scientific apparatus, endeavouring merely to make the exposition as simple and clear as possible."

It may be said at once that Professor Rostovtzeff succeeds completely in his aim. Every one of the four hundred odd pages of this first volume of his book is written with that sobriety and lucidity which comes only from complete mastery of a subject. The casual reader, indeed, carried along by the simplicity of the style and the apparent ease with which the whole panorama of ancient history is kept before his eyes, might well be forgiven for underestimating Professor Rostovtzeff's achievement. That achievement is, in fact, one far from common in this, or indeed, in any day. It is all too seldom that a man of his deep and wide knowledge, largely gained by independent research, is capable of writing a book like this, simple enough for the general reader to understand and enjoy, and yet free from the slightest taint of sensationalism. He has none of those intellectual axes which are so often ground before the eyes of the public, nor does he bestride any of those fantastic hobby horses whose antics so often bring their riders to grief. But for that large public, which one must hope to exist, formed of intelligent and educated persons, who wish for an unprejudiced yet authoritative account of the outlines of ancient history, this is undoubtedly the book.

The value of the volume is greatly enhanced by the very numerous and excellent illustrations, which, besides their own intrinsic interest, do really illustrate the text. The format of the book is, indeed, entirely good, and it has that rarity, an adequate index, besides useful maps and a bibliography. One is beginning rather to take all this for granted in books issuing from the Oxford Press, and the only fault that one can find is that there is no indication of the size of the objects illustrated, an omission which is particularly tiresome where so many of them are of sculpture.

Finally a word should be said for the translation by Mr J. D. Duff, which is so good that no one would imagine it was a translation at all, were the fact not advertised on the title-page.

E. G. WITHEYCOMBE.

THE DIFFUSION OF CULTURE. By R. R. MARETT, M.A., D.S.C.; being the Frazer Lecture in Social Anthropology. Cambridge University Press. 1927. 38 pp. 1s. 6d.

Dr Marett used the opportunity presented by this lecture to champion Tylor and Sir James Frazer against the attacks of Professor Elliot Smith and his followers. We are inclined to agree with the suggestion that the reputations of these great men are " too

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well established to need vindication against criticism perhaps too perverse to call for serious notice." But such attacks need refuting from time to time, and Dr Maret's lecture makes excellent reading. Even an empty match-box serves to strike a match upon ; and the wanderings of the "Children of the Sun" have at any rate achieved this negative result. The serious student of archaeology will be amused by one sentence which we cannot refrain from quoting :—"If a man [Professor Elliot Smith] writes deliberately : 'There can no longer be any doubt that the essential elements of civilization did really originate in Egypt,' what is the use of adding by way of an afterthought : 'it is my duty to inform the reader in the most specific way that I lay no claim to the right to express an opinion on archaeological matters' ?" (p. 16). The value of the first statement may be inferred from the second.

URGESCHICHTE DER NAHRUNG. By OSWALD MENGHIN. Reprinted from the *Lexikon der Ernährungskunde*, pp. 1024-47. Julius Springer, Vienna. 1926.

It is a pity that the author of this article has felt himself restricted to prehistoric Europe and excluded any examination of the evidence from the Ancient East. The result is inevitably a very one-sided picture of the earliest basis of human life. The great advances in food-getting—domestication of animals, cultivation of plants and the invention of the plough—which alone made civilization possible, were made in Egypt or Mesopotamia or some adjacent region, as Menghin himself is disposed to admit at least in the case of the plough. Our early forerunners of the Old Stone Age in Europe were merely food-gatherers at the mercy of their environment ; for Piette's doctrine of the cultivation of grain in southern France in Upper Palaeolithic times, though accepted in this paper, rests upon as flimsy foundations as his theory of the "semi-domestication" of animals at the same date, here very properly rejected.

The earliest grain cultivated in Europe was, according to Menghin, barley, which has been found wild in Hither Asia and North Africa. Next would come the wheats, but the priority of barley culture even in the Ancient East is very uncertain in view of the discoveries at Anau in Turkestan and, more recently, at Kish in Mesopotamia and in the Fayum, and is unsupported by any evidence as far as Europe is concerned. Wheats, like barley, do not occur wild in Europe north of the Balkans, and must therefore have been introduced from the Eastern Mediterranean area in the first instance.

Rye would have been cultivated first in the Iron Age according to Menghin. Actually Miss Kozłowska has found the grain in a neolithic settlement in Poland.

The idea of domesticating animals would have arisen among the nomads of Upper Asia but most animals bred in Europe would be of local origin. In particular the earliest domestic swine is said to be descended from the European wild boar and not, as is usually held, from the Asiatic variety. In any case the limitations on the author's outlook have excluded all reference to Anau in Turkestan. Yet at no other site are the various stages in the domestication of animals so clear, thanks to an admirable study of the bones from four successive settlements.

Despite these and other limitations Professor Menghin has given a very valuable summary of the way in which our ancestors obtained and prepared their food in prehistoric times.

V. GORDON CHILDE.

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LA ESFINGE INDIANA. By J. IMBELLONI. Buenos Aires : Pedro Garcia. 1926. pp. 396.

This is an important work dealing with American origins ; because of its general treatment and discussions on method it is of great interest to others besides Americanists. The author is a university professor in Argentina, who has already written much on physical anthropology and early culture.

Part I (" The Heroic Age ") deals with the 400 years' history of the problem, and the varied solutions that have been put forward. Then, after a particular consideration of two of the latest theories (Ricci's migration from America to Chaldea, and the " Manchester School's " diffusion from Egypt) the author in part IV (" First Light in the Labyrinth ") draws the first outlines of a solution founded on our knowledge to-day in ethnology and linguistics.

The different chapters are clearly written, though perhaps the work as a whole might have been closer knitted, and a little more tidily arranged. " Reader, if you are a believer in the Aristotelian unity," Professor Imbelloni says in his preface, " this book is not for you ;" but he points out that this springs from the very nature of the subject and the way it has been treated by his forerunners. Be that as it may, he wields a keen and sure logic that makes the reading an intellectual pleasure throughout.

The history of the theories on American origins passes in a ghostly procession before our eyes in part I, and many of the ghosts still walk. Europe, Africa, Asia, Oceania—the home of the American has been placed in all these ; imaginary continents have been created for the same end ; while some have held him to be autochthonic. Then, not long since, Professor Ricci, of Argentina (stung perhaps by the many wild theories in the opposite sense) put forward the theory that " the civilization of Central Asia (*sic*) as built up by the Sumerians, is an offshoot of the prehistoric American civilization." Tiahuanaco, whose ruins (" a wonderful thing, which all should see," as the old Spanish chronicler says) brood over Lake Titicaca high up in the Andes, is given as the starting point for this transmission across 9000 miles of land and sea. For this theory, vast chronological figures too are needed, and Ricci has to accept the wild theories of Posnansky. Imbelloni makes a very searching analysis of the arguments, whose effect was to set Tiahuanaco aside from the general picture of prehistoric culture, with an extravagantly lofty and ancient culture of its own (Posnansky puts the latest buildings there before 10000 B.C.) He utterly demolishes the geological, climatic, and astronomical arguments that have been used (he finds indeed that a correct calculation from one of Posnansky's data would give 1200 A.D. as the date for one of the buildings !) He holds Tiahuanaco to have been not a town, but a sanctuary (left, moreover, uncompleted) like Cuzumel in Yucatan, and of comparatively late date. He shows, too, that Ricci's linguistic and other arguments cannot stand. Imbelloni next comes to what he calls the " Manchester School," with its " Egyptian obsession." He deals, it is to be noted however, only with the works of Professor Jackson and Professor Elliot Smith, of which he makes a very careful analysis in part III, ending in thorough disagreement with them. " Both in this question, as in that of the shells," he remarks on page 201, " and in others we have discussed or shall presently discuss, it is clear that the Manchester school either makes a wrong (*pecca*) choice of data and exaggerates their value, or else applies a wholly inadequate method to the facts and observations collected." He might even say that it is *pecca fortiter sed crede fortius*. He grants however that " no doubt in the infancy of the science this movement had its half-hour as a stimulus to curiosity."

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Having dealt with the earlier theories, Imbelloni in part IV sets forth in outline his own theory of American origins. Here and elsewhere he makes valuable contributions, too, to questions of method in the cultural sciences. He is of the sound view that "dependence and convergence can live side by side without any disagreement, in spite of the irreconcilable theorists" (p. 295). He gives two canons for the method of diffusion: (1) not to depend on single analogies; (2) to reject all proof not based on correspondence in ethnology, archaeology, and linguistics alike (p. 282). Of the American problem he remarks that before looking for relations far away we should seek all possible intermediate forms within the American area.

As the result of excavations in which he took part at Miramar in 1924 he says that "he has no doubt left as to the presence of man in America from the lower Quaternary, that is, contemporaneously with the oldest human traces found in Europe" (p. 263). So that we need not, he says, at present go further back to ask whether the American is autochthonic or not; though he agrees with Biasutti that he was not a homogeneous type. This early American man would seem, according to him, to have died out or been overlaid by the immigrants from the west. For it is here that we have the main thesis of this work:—that the American peoples and cultures are of Oceanic origin. Imbelloni is in agreement with Rivet, who, starting from a correspondence in a fairly large set of words in each case, posits an identity between the North American Hoka and the Melaneso-Polynesian linguistic groups, and between the South American Chon and the common element in the Australian group. With Father Schmidt, we can hardly do more than take up an attitude of reserve towards such a theory in the present state of our knowledge, particularly that of the Australian and the South American languages. Imbelloni, however, mindful of the canons of method laid down by him deals with the considerable common elements to be found in the anthropology and culture of the groups. He declares (p. 303) that "the whole heritage of the American stands related indirectly or directly to that of the Oceanic man." (Thus, incidentally the Polynesians may be said to have reached the aeneolithic stage in South America). As to the autochthonic quaternary man, his "contribution. . . may be considered as nothing at all." America would have been settled from west to east through the Pacific gateways; the "unhistoric" peoples of America, like those of the higher cultures, are continuers of a culture from the Pacific, the Polynesians being the latest-comers (p. 324). The cultures of Mexico and Peru are "American" in the same way that the Greek culture was developed by Aryan Hellenes on a Mediterranean basis (p. 330). Easter Island is the last link in a long chain; and Imbelloni mentions recent discoveries at Ancachs in Peru (stone statues), and at Llolleo in Chile (obsidian implements) of markedly Rapanui character (pp. 241, 281). It is to be noted that Imbelloni does not follow Rivet in the latter's complicated later hypothesis of additional migrations from the Amazon valley into the Andean region. So far, then, the mainstay of the Oceanic theory lies in linguistics. In the appendix Senor Palavecino gives 65 words from the Kechua which are practically identical in every way with Maori words, and support Imbelloni's theory that the last of the Oceanic immigrations was Polynesian. Father Schmidt thinks that Kechua may have had Ecuador for its original home, and came later than Aymara into the Titicaca area, there having been there earlier than either of them an Arawak population of hunters and fishers. The problem, of course, is highly complicated, and one of the first needs is intensified work on the South American languages. Palavecino says that he has found that over 30 per cent. of Kechua words are Polynesian in phonology, while what changes there are in meaning can be explained by certain well-known laws. The

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suggestion may be made here that, for comparing the word-stock of two languages, the argument becomes much more cogent if the words are first sorted into coherent groups (as the whole and its parts, classes of food-plants, and so on). Palavecino's list is simply in alphabetical order.

In a concluding section Imbelloni seeks to bring greater precision into the Kechua Polynesian relation: Kechua stands nearest to southern Polynesia (keeping *k*, and preferring *r* to *l*), and has just such variations as any other Polynesian dialect. Polynesian is itself a superposition, he points out, in the Oceanic area. The rightful criticism has been made on his treatment here that he adds no weight to his argument by bringing comparisons from various parts of Polynesia, the linguistic uniformity of the area being well known to philologists. He promises to carry his investigations into the "tangled skein of the Melanesian and Malay elements," and Senor Palavecino is examining the Australian element in the South American languages. They, or someone for them, will, it is to be hoped, deal with the South American languages, where so much waits to be done, and which are at their door.

The book has an excellent collection of apposite illustrations and maps, and most useful bibliographies to the chapters. It is a valuable work which does honour to Argentine science; and we await with the greatest interest the supplementary volume promised us by the author, in which, too, he will deal with criticisms. G. C. WHEELER.

MAYA AND MEXICAN ART. By THOMAS ATHOL JOYCE. *The Studio*. 1926. 10s. 6d.

The title and author of this volume are, in themselves, sufficient to make discerning persons resolved to possess it. Nor would they be disappointed. Mr Joyce's chapters on the various branches of Maya and Aztec art are filled with information and appreciation and the marginal references render the reading of the book easily compatible with looking at the illustrations. These illustrations are worth volumes of exposition, for the purpose of giving some idea of that amazing civilization and, especially when looking at the reproductions of sculpture, it is almost impossible to believe that these masterpieces, for such they are, were executed by men living for all practical purposes, in the Stone Age. The Maya sculpture, with its wonderful design and subtle modelling, can only be compared with that of Assyria, to which, indeed, it occasionally bears an extraordinary likeness. The two figures of priests on the tablet illustrated on page 57, are good examples of this resemblance. In a way, however, the examples of Aztec sculpture are even more remarkable than the Maya. Nothing like those figures and masks, cut from the hardest stones, has ever been achieved, before or since, though they do bear a striking resemblance to the most modern works of art. Attention should specially be drawn to the stone figure on page 83, the obsidian mask on page 85, and the quartz mask on page 91. These could bear comparison with any of the masterpieces of the Old World, so far as powerfulness and haunting grimness are concerned.

The sections devoted to architecture, pottery and drawing are only less absorbing than that on sculpture and are almost equally interesting as examples of what can be done by people living in a primitive state, so far as their knowledge of metals goes.

It should be added that practically all the objects illustrated are in the British Museum, and it cannot but be a source of satisfaction to reflect that in British Honduras is one of the areas best fitted for research into Maya civilization and that British anthropologists, of whom Mr Joyce is of course one of the foremost, have been amongst the most eager in that research.

E. G. WITHEYCOMBE.

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THE JOURNAL OF THE ROYAL ANTHROPOLOGICAL INSTITUTE. Vol.
LVI, July-December 1926. 15s.

T. A. Joyce gives a very interesting and well illustrated report on the first year's investigation of Lubaantun in British Honduras. The conclusions he draws are that Lubaantun differs from all known Maya sites by reason of certain architectural peculiarities and the absence of ornamental or hieroglyphic sculpture, and that it was occupied for a long period, from a date anterior to that of the Early Empire up to late Maya times and possibly even after the discovery of America. An account of the pre-Columbian mounds on the Tampico region of Mexico by John M. Muir shows that they contain superimposed cement floors (some of which are decorated) and that they functioned as foundations for dwellings. Richard C. E. Long writes on the Zouche Codex, and S. B. Leahey gives a new classification of the bows and arrows of Africa with some excellent distribution maps, and we are glad to hear that he intends to work the subject out further. Miss E. W. Gardner in her paper on the recent geology of the northern Fayum Desert shows that there was an early high-level lake filling up the natural depression to at least 222 feet, and a later lake which reached its maximum level of 205 feet before the advent of the Fayum people. In a lucid paper on the neolithic industry of the northern Fayum Desert Miss Caton-Thompson brings forward what appears to be irrefragable evidence against the Solutrean dating of that culture. She places it at the end of the Neolithic period and compares it with the Badarian and Nubian groups. Sir W. Flinders Petrie in a short paper makes some critical observations on the reports of Miss Gardner and of Miss Caton-Thompson. An article by A. P. Lyons on the customs and habits of the Gogodara tribe of western Papua contains some good illustrations of clan designs on paddles and canoes. E. S. Thomas compares the drawings from ancient Egypt, Libya and the south Spanish caves, and suggests that the rock signs of ancient Spain and Libya may prove to be pictographs and not mere scribbles or decorations. There are some notes on the coiffure of the Litang women by J. Houston Edgar. The last article, but by no means the least important, is one on the archaeology of Gorgona Island, South America, by James Hornell of the St. George expedition to the South Seas, in 1924. The description of the stone implements, pottery and sculptured boulders whets our appetite to hear still more of this very interesting culture.

R. C. C. CLAY.

MAORI STOREHOUSES AND KINDRED STRUCTURES. By ELSDON BEST. Dominion Museum Bulletin, no. 5. Wellington, N.Z. 1916. pp. viii, 107.
THE MAORI CANOE. By ELSDON BEST. Dominion Museum Bulletin, no. 7. Wellington, N.Z. 1925. pp. iv, 312. **THE MAORI AS HE WAS.** By ELSDON BEST. New Zealand Board of Science and Art Manual no. 4. Wellington, N.Z. 1924. pp. xv, 280.

These three works by the eminent New Zealand scholar Mr Elsdon Best are of anthropological rather than archaeological interest, though since they deal in intimate fashion with certain phases of the life of a neolithic people they may throw some interesting sidelights on general conditions in prehistoric times.

The first BULLETIN describes in detail the various methods of storing food supplies practised by the Maori—on stages, in huts on posts, underground pits, etc. The description and sketches of the bottle-necked underground reservoirs within the scarped hill forts for the storing of water in time of siege is a point of some interest for comparison, as is also that of the storehouses built out in piles into the lake.

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THE MAORI CANOE is a valuable monograph, well illustrated and full of information on the various types of craft possessed by the natives, their building, fitting out, ornament, use, and navigation. Much information is also given on the canoes of other island groups in the Pacific, with notes from the early voyagers' accounts. *Inter alia*, the use of stone tools in wood-working is discussed. The skill and knowledge of scientific principles on the part of primitive man is made clear by the accounts of the construction and voyaging of the old sea-going canoe.

THE MAORI AS HE WAS is a very useful manual for those who wish to learn something of the arts, crafts and institutions of the native of neolithic days. For this the abundant illustrations of tools, weapons, ornaments and other aspects of social and material culture provide an effective background.

RAYMOND FIRTH.

ROYAL COMMISSION ON THE ANCIENT AND HISTORICAL MONUMENTS AND CONSTRUCTIONS IN WALES AND MONMOUTHSHIRE :
VII, COUNTY OF PEMBROKE. London : H.M. Stationery Office. 1925. £3 3s.

It is a mystery to the layman why the English, Scottish and Welsh Historical Monuments Commissions should each have chosen a different (and even a variable) format for their volumes ; a greater mystery why the Welsh Commission should have chosen an unwieldy foolscap size which fits no normal bookshelf, fails to stand up if of modest width and, if of the size of the present volume, is an awesome burden to the reader. "Pembrokeshire" runs to 490 of these foolscap pages, weighs over six pounds, and costs the unwary speculator three guineas. These formidable qualities at least ensure that, for good or ill, the volume shall not escape attention.

The work of production has been carried out by the Stationery Office with efficiency ; the type is satisfactory and the illustrations are for the most part technically good. Of the choice of illustrations less can be said. Some, such as those of the St. David's roof and east windows, are excellent, and the photographs of the carved and inscribed monumental stones form a creditable series. But many of the figures are bad in themselves or are wrongly included. Thus the frontispiece (Cilgerran Castle) is taken from the 18th century engraving after Richard Wilson, and many other illustrations are reproduced from ancient drawings and prints. Even where these are accurate (and they are sometimes patently inaccurate), they have no value as records of these monuments in the present year of grace, and the Commission both exceeds and falls short of its proper function in including them at the expense of more modern material. It has spent its time by candle-light in hunting up well-known engravings by Buck and less-known scribbles in venerable manuscripts, when it should have been tramping the hills with note-book and camera, or at best it has contented itself with pretty sketches instead of preparing architectural records of scientific value.

Other points in regard to the illustrations call for comment. A group of four Bronze-Age urns found near Narberth occupy no less than four expensive half-tone blocks, each urn being represented *three times* ! Yet another block (on fig. 5) is devoted to a small piece of bone (from one of the same urns) ribbed in a perfectly normal fashion by heat but alleged to show "peculiar markings." The same plate contains three blocks of urns found respectively in Glamorgan, Carmarthenshire, and Anglesey and having no connexion whatever with the county under discussion. The dolmen at Newport, well illustrated by a half-tone block as fig. 9, is again shewn in fig 216 by means of a sketch

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drawn from the same point of view specially for this volume ; whilst a dolmen at St. Nicholas is also twice illustrated (figs. 8 and 315). A flint chisel is of sufficient importance to appear both as fig. 4 and as fig 98a. Figures 100 (i) and (ii) are two separate views of Cilgerran Castle from the same aspect ; and the same side of the tower of Loveston church is photographed as fig. 76 and drawn as fig. 171. And so on. The excavation of Haverfordwest Priory, carried out in 1922, is referred to in the text but, instead of reproducing the published plan of these excavations (which are still open), the Commission's editor has used a preliminary plan prepared by the excavator prior to the digging. These instances merely indicate editorial incompetence, but the mention of plans draws attention to a far more serious deficiency.

From the outset, the Welsh Commission has failed completely to realize its responsibilities in regard to the numerous architectural monuments which come within its purview. Its descriptions of architectural remains have been either childishly inadequate or definitely misleading, and in no county has it prepared an architectural plan of any archaeological value. Pembrokeshire, with its castles and its ecclesiastical group at St. David's, provided an opportunity for repentance and reform. What use has the Commission made of this opportunity ? The famous castle of Pembroke itself is represented by a ridiculously inadequate outline-plan taken from a guide-book published by a newspaper, and " based upon the discoveries and conjectures " of a Mr Cobb who wrote an article on the castle in 1883. Carew Castle is represented by a small block-plan little more than an inch square and prepared in 1886. The list could be extended indefinitely. In the case of St. David's Cathedral a special effort has been made ; a period-plan (fig. 282) has been borrowed—and reduced to so small a scale that it is all but impossible to distinguish one period from another ! It need hardly be added that no attempt is made to plan the cathedral in relation to the medieval buildings which adjoin it.

In regard to the plans of earthworks and kindred structures the case is as bad or worse, and no detailed comment will here be made.

Let us turn now to the text. The total inadequacy of almost all the architectural descriptions has already been noted. The account of St. David's Cathedral has indeed been guided by the competent hand of Mr E. W. Lovegrove, but the very striking remains of the Bishop's Palace are not even deemed worthy of a separate entry, nor are the medieval close-wall and gateway even mentioned ! The Palace is indeed described in a summary fashion, but the description is that of Pennant, published in 1811 ! At St. Dogmael's Abbey, planned and described by Mr A. W. Clapham in 1921, the editor, while accepting Mr Clapham's plan, attaches it to a muddled description compiled by an amateur in 1859. Reference has already been made to the ridiculous treatment of the important castle-architecture of the county. Where the editor ventures to supplement the fourth-rate theories of amateur Victorian antiquaries by any observation of his own, we are served with statements such as this (of Roch Castle) : "*The chapel, now used as a boudoir, retains its ribbed vaulting ; in the east wall is an opening which, if the castle possessed a chapel, may have been an aumbry*" (*italics added*). The editor is so completely befogged that he cannot even steer his course through a semicolon. Example follows example of incompetence throughout the book, and those noted here are chosen at random from a multitude. One more only may be cited in the present context. Throughout the Welsh Commission's reports ancient secular architecture has been grossly neglected. By grace in the present volume a few specimens of the very interesting Pembrokeshire cottage-architecture have been illustrated in line or half-tone—

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but they are not referred to in the Inventory ! On the other hand a " bronze pipkin " seen in 1864 at Haverfordwest and now lost is honoured with a separate entry.

From the Inventory we turn to the Introduction. Here the editor surveys the scene and with unnecessary pomp and circumstance emphasizes the ignorance which he attempts to conceal. We read : " It seems to be beyond dispute that some of the stone implements discovered in Pembrokeshire have been obtained from *pre-glacial* deposits, and must therefore be accepted as *genuine human products of the Palaeolithic Age, or of the twilight period of Azilian or Tardenoisian finds* " (*italics again added*). The only possible inference from such a statement is that its writer has not begun to understand the relationship of the glacial era with palaeolithic and mesolithic man ; unless it be the further inference that such a non-sequitur statement could only proceed from a mind incapable of logical reasoning. Under the Bronze Age we learn : " The Bronze Age saw the county occupied by what appears to have been a busy and flourishing population, which shared to a considerable extent in the culture of that age. The community constructed big camps, adapted as well for defence as defiance." This unequivocal statement in face of the fact that not a particle of evidence suggests any occupation of any Pembrokeshire camp in the Bronze Age ! If we turn back for a moment to the Inventory, we can easily see how little the editor understands the nature of Bronze-Age evidence. Thus, a late Romano-British cooking-pot (no. 690 A) is described as " of the cordon type, and probably dates from the later Bronze Age ; " a halberd (no. 802) is described as a dagger ; and a palstave (no. 116 A) is described as a flanged celt. Similar errors abound in previous volumes from the same incompetent hand.

Passing over a later reference in the introduction (p. xxxv), to Stonehenge, where it is clear that the editor has not appreciated the results of recent research, we come to a long and wordy discussion of the possible site of the battle of Mynydd Carn, fought in 1081, a topic quite outside the scope of the Commission. And this brings us to the final and fundamental question : What is the intended scope of the Commission's survey ?

The intended scope is pretty clear. It is laid down by Royal Warrant that the Commission shall " make an inventory of the Ancient and Historical Monuments and Constructions connected with or illustrative of the contemporary culture, civilization, and conditions of life of the people in Wales and Monmouthshire from the earliest times, and to specify those which seem most worthy of preservation."

In this function the Welsh Commission has failed, and failed catastrophically. Only the Roman material, which has passed through the skilled hands of Mr R. C. Bosanquet, can be regarded as consistently adequate. For the rest, we accuse the Welsh Commission of (1) lack of all technical appreciation of the architectural evidence which is the nucleus of their whole work ; (2) the consistent use of out-of-date, incomplete and inaccurate descriptions and illustrations of their material ; (3) a consistent ignorance of prehistoric and Roman material, with the exception of those Roman sites dealt with by Mr Bosanquet ; (4) a complete failure even to attempt to fulfil the terms of reference in respect of secular architecture ; (5) irrelevance in matter and treatment ; and (6) a general editorial incompetence which incidentally involves the waste of public money.

Indeed with all restraint it may be urged that the Commission as at present constituted is a laughing-stock amongst professed archaeologists and is financially an unjust charge upon the State.

O. E.

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THE PLACE-NAMES OF THE ISLE OF MAN. By J. J. KNEEN. Parts i-iii.
1925-6. The Manx Society : Douglas.

The Isle of Man has been fortunate in the enthusiasm of its sons for the antiquities of the Island. The late A. W. Moore did much for its place and personal names. Mr P. C. Kermodé has written a volume upon *Manx Crosses* of the highest scholarly and artistic value. To these names must now be added that of Mr J. J. Kneen, as the first exhaustive interpreter of its place-names. The Manx Society has now published the first three out of some six parts of his study on *The Place-names of the Isle of Man*. The time is not yet ripe for a full review of the work but an 'interim report' on the work should be of interest to the readers of ANTIQUITY. Following the usual line of place-name study nowadays Mr Kneen has diligently collected from the ancient *Chronicle of Man*, from early cartularies, from sixteenth century manor-rolls, from inscriptions, from registers and the like, all available early forms. For many of the names no really early forms are available; but here, by close and careful record of the local pronunciation of the names in question, Mr Kneen has been able to unravel many a difficult etymological problem. The linguistic problems arising from a Celtic basis, a Norse admixture, and an English domination are many, and names have become strangely transformed. The ancient Celtic saint St. *Ninian* is present, much disguised in St. *Trinian's* Church in Kirk Marown; the Manx *cashal ny waaid*, 'hill of the sods' appears in 1511 as *Castel Newade* and now as *Castle Ward*. It takes its name from a hill partly natural and partly artificial, and part of the estate is still locally known as 'Sod Castle.' Names of Scandinavian origin undergo similar transformations. 'Old *Barrule*,' familiar to us from the poems of T. E. Brown, is from Old Norse *Vörðufjall*, 'ward-fell'; Orrisdale is from Old Norse *Hæringssstaðr*, 'Hæring's farm'; Skibrick is from *skiphrýgg*, 'ship-ridge,' a hill which by its shape suggested a ship turned upside down; Gretch is from *Grettisstaðr*, a farm named after one *Grettir* bearing the same name as the famous Icelandic outlaw Grettir the Strong. Sometimes we have a curious mixture of Norse and Manx as in Ballaharry, earlier *Balhamer*, 'farm of the crag,' from the common Manx word for a farm and the Old Norse *hamarr*, 'crag.' Only rarely do we come across names of purely English origin and those of quite late date, as in White Hoc, 'white ridge or hill.'

Throughout his studies Mr Kneen has a keen eye for topography, for the legends and for the antiquities of the country-side. The Dhoon in Kirk Maughold (cf. Gaelic *duin*, 'fort') takes its name from the earthworks on Kionhenin; Slieau Ynnid ny Cassyn in Kirk Christ Ruthen 'the mountain of the footprints,' takes its name from a rock which bears the impression of a club-foot, said to have been made by St. Patrick when he landed there from Ireland; and Oog ny Seyir, in the same parish, 'cave of the carpenters' was so called by the fishermen who said that fairy carpenters made furniture in the cave, and when they sailed past they could hear their hammering and see the chips being washed about by the tide. Mr Kneen's work is no dry-as-dust etymological study. It is a living record of the traditions and lore of the Isle of Man, caught just before it is too late; and to him we owe a debt of deepest gratitude. It is earnestly to be hoped that the enterprise of Mr Kneen and of the Manx Society may gain that full measure of support which it so richly deserves.

ALAN MAWER.

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OUR PREHISTORIC ANCESTORS. By DOROTHY DAVISON. London : Methuen. 1926. pp. 200, illustrated. 7s. 6d.

We are supplied here with an accurate and orderly summary of the evolution of Man from earliest times until the close of the Azilian-Tardenoisian period. The treatment is superficial, but none of the salient facts is omitted, and the work is certainly up to date, since accounts are furnished of the Galilee skull and that of the Lady of Lloyds. It is the author's hope that the book will prove of service to teachers, and, in point of fact, it has been primarily written with that object in view. To a large extent the hope will be fulfilled. But the reader cannot help being struck by the meagre part which British archaeology is allowed to play throughout the chapters. In a book designated for the education of English children this is a fundamental error, since British names, both personal and local, would find a more easy reception in a child's mind and would help to sustain the listener's attention and interest. It is not suggested that the material facts relating to the Continental discoveries recorded by Miss Davison should be omitted ; far from it. The information she has collected is indispensable for completing an outline of Man's physical and cultural progress ; nevertheless the value of her book would have been greatly enhanced were the English evidence described to better advantage. When a second edition is in contemplation, it may also be worth consideration whether there can be included a few pages on Pleistocene geology, explained in the author's lucid manner of instruction. Miss Davison forcibly demonstrates that in pursuing the study of archaeology there are occasions when the dullest of imaginations will be aroused and when the thrills of the adventurer may be shared. As an example, we find on page 140 the following graphic description. . . " After exploring splendid halls adorned with pillars and cascades of stalagmite of beautiful colours, they had to give up the search. They paid more visits later, however, exploring another passage, and at length, after being nearly asphyxiated, they succeeded in reaching an immense gallery 115 yards long and 12 yards wide. Here there were few stalagmites, but the walls were covered with engravings and paintings in black and red of mammoths, horses, and fish, and there were ten silhouettes of human hands, as well as numerous signs and dots. One flint graving tool was found, and a bear's tooth which had been carefully placed by a Cro-Magnon on a ledge of rock. On the floor were the animal's bones and the footprints of the men of long ago." The style of the author's writing is commendably clear and carries a freshness which makes the 200 pages seem all too few.

J. P. T. BURCHELL.

EVERYDAY LIFE IN THE OLD STONE AGE. By M. and C. H. B. QUENNELL. London : B. T. Batsford. 2nd edition, 1926. pp. 113, illustrated. 5s.

The writings of Mr and Mrs Quennell, whether upon historical or prehistoric matters, are now well known and they are appreciated by large numbers of people, both young and old. The volume under review is the result of the exhaustion of the first edition which appeared some five years ago, and the opportunity has been taken of making revisions and additions. The authors have not attempted to portray a detailed account of pre-Neolithic man in this country, nor was it their intention to produce a simplified text-book on the subject : they merely sought to provide an introduction to that study by methods and in language which would attract the interest of a child and satisfy its requirements. Mr and Mrs Quennell have succeeded. We congratulate them and also the children who are so fortunate as to make acquaintance with this very delightful book.

J. P. T. BURCHELL.

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EXCAVATIONS AT CHELM'S COMBE, CHEDDAR; conducted under the Excavations Committee of the Somerset Archaeological and Natural History Society, 1925-6. J. C. and A. T. Sawtell, Sherborne. 1927. 1s.

This is a report on a rock-shelter which was inhabited during Neolithic and later times. The archaeological finds included two round-bottomed Neolithic bowls which have been mended by Dr Clay, large portions of a (probably Neolithic) vase with finger-tip ornament, bone implements (also probably Neolithic), a bronze brooch of about 50 A.D. and many objects of lesser importance. Innumerable remains of animals of all kinds were also found and are ably identified and described by specialists. There was also a 'rock-tomb,' but we cannot find any description of it or account of its excavation. This omission is a serious one, especially as the burial is described by Mr Balch as being "unique among Mendip tombs." It is claimed from the evidence of the human bones to be Neolithic; portions of four individuals were represented. It seems therefore to have been a communal burial-place, the local, if diminutive, equivalent of a long barrow. (It was "only about a yard square and about the same in height").

So far as it goes the report is useful, and the work seems to have been well carried out. But a lack of co-ordination is evident. The specialists' reports are thrown together and it is really difficult to find out what exactly was done. The essentials are given, but one would have welcomed more descriptive matter. Mr Balch's preliminary remarks might well have been omitted.

THE MYSTERY OF WANSDYKE. By ALBANY F. MAJOR, O.B.E., F.S.A., and EDWARD J. BURROW, F.R.G.S. Edward J. Burrow and Co., Cheltenham and London. 1926. 25s.

Mr Burrow has accomplished a difficult task in producing this book, which he has edited and in part written. His collaborator died while the book was in its final stages, and he was obliged to complete it without Mr Major's help. Circumstances such as these handicap the reviewer, for he is loath to criticize unfavourably the work of one who, in the words of Mr Burrow, was "a keen archaeologist and a good friend."

By what standard shall the book be judged? It is the only book written entirely about Wansdyke. It should state clearly and succinctly the evidence (1) for the course followed; (2) for the age, and (3) for the purpose for which it was constructed. Now for the greater part of its course Wansdyke is so well preserved that there can be no uncertainty about it. The doubtful portions are those in Savernake Forest, the portion near Bath, and that between Maes Knoll and the Bristol Channel. To recover these missing fragments would need the utmost skill and experience, combined with a stern resolution not to allow oneself to be deceived by misleading appearances, such as are often presented by modern or medieval enclosure-banks. To judge from the descriptions given these qualities seem to us to have been lacking. The majority of the 'associated earthworks' are plainly of quite recent date, and in no way connected with Wansdyke; and we feel convinced that many of the indications of the dyke itself which have been accepted as reliable should have been ruthlessly rejected. It is very greatly to the credit of the authors that they enable us to form our own judgment, by reproducing, in a most sumptuous fashion, the portions of the 25-inch Ordnance Maps with all these banks inserted. These, at any rate, are records of facts; and though we believe them to be for the most part irrelevant, who shall say that they are not, or may not some day be, of

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value? But is it likely to enhance the credit of field-archaeology, if its devotees not only allow themselves to be misled but proclaim the fact so loudly?

One would have thought that the date of Wansdyke had been fixed once and for all by the excavations of General Pitt Rivers, who proved conclusively that the portion which he excavated was Roman or post-Roman. But Mr Major, who always hankered after a less simple explanation, believed that it was "a composite work, made up of sections belonging to different periods and varying in size and construction" (p. 135). For this belief there is no evidence whatsoever; the alleged structural differences are mainly imaginary, nor, if they existed, would not necessarily prove a difference of age—they might well be due to geological factors. Mr Major's reasoning always puzzled us. When searching on the ground for traces of Wansdyke where it has disappeared, he would select one from the innumerable lesser banks which are to be found in almost every field, and call it Wansdyke; to most people the very fact that such a bank was of insignificant proportions would suggest that it was not Wansdyke. But Mr Major, having pronounced his verdict, proceeded to draw conclusions from his own opinion as if that opinion were a universally accepted and proven fact! Because some bits of "Wansdyke" are of much slighter dimensions than others, therefore they 'belong to a different period'! Such reasoning as this invalidates the whole book; we cannot trust any of the writer's interpretations.

For the same reason we agree with Mr Burrow in rejecting Mr Major's suggestion of a southern branch of Wansdyke between Bedwyn and Ludgershall. We had the advantage of going over this part of the ground with Mr Major himself, together with some other archaeologists, at the time of the last revision of Wiltshire by the Ordnance Survey. Our opinion, which was shared by the other members of the party, was that Mr Major failed entirely to make out a case. The banks claimed to be Wansdyke are of different ages—one is probably a medieval enclosure-bank, another on Wilton Down is certainly connected with some Celtic fields; these alleged portions are separated by gaps where no traces are to be found.

Mr Burrow claims that Mr Major's "life's work is largely summed up by the records now finally recorded in this book." The claim is hardly correct. Mr Major himself states (p. 106) that he did not begin to examine Wansdyke until 1913. He had already to his credit a book on the "Ancient Wars of Wessex" and other writings mainly dealing with allied matters, not to mention his valuable work as Secretary of the Earthworks Committee of the Archaeological Congress. Our own examination of Wansdyke began some years before Mr Major's, and we had walked along practically the whole length of it, and discovered most of the recoverable missing fragments, before Mr Major came on the field. These results were not published, but were placed at Mr Major's disposal; and were incorporated in the new edition of the large-scale Ordnance Maps when the opportunity occurred. We may therefore claim some familiarity with the subject. Perhaps, therefore, a short resumé may be pardoned.

The course of Wansdyke is fairly certain between Inkpen in Berks and Morgan's Hill in Wilts. There is, however, a large gap in Savernake Forest where no certain traces have been found. The most easterly portion that can be identified with certainty is Old Dyke Lane: (that this was really part of Wansdyke is proved by a survival of the actual name in an 18th century terrier of Inkpen parish, in the possession of the Rector). By far the best-preserved portion is that on the southern part of the Marlborough Downs. From Morgan's Hill to Kingsdown above Bathford, Wansdyke follows the course of the Roman road, which was used in constructing it. There is a

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gap between here and Odd Down ; but thence to Maes Knoll it can be traced almost continuously. Beyond this we are dependent upon Mr Major's identifications. The age is either Roman or (more probably) slightly post-Roman. The purpose is unknown ; but it may have been intended to form a barrier against the Saxon invaders. In later times it was called " Wodnesdic "—Woden's Ditch—evidence that from early in Saxon times it was regarded with awe and its purpose probably forgotten. (It may be remarked in passing that the earthwork called on the Ordnance Map " Woden's Ditch " near Netherton in N.W. Hampshire, is a modern figment and has no resemblance to, or connexion with, Wansdyke ; it is called " Grimes ditch " in some medieval Forest Perambulations).

What was required was a concise account of its course, of the earlier references to it in pre-Conquest charters, and of General Pitt Rivers' excavations. The dense undergrowth of conjecture should have been ruthlessly cleared ; the descriptions of earlier writers are of value only in so far as they throw light on fragments which have now vanished. Such a work has yet to be written.

THE ROLLRIGHT STONES AND THE MEN WHO ERECTED THEM. By T. H. RAVENHILL, M.B., B.CH. Sold for the benefit of parish activities in Little Rollright ; price 1s. 6d. (Printed by the Birmingham Press Ltd., Hill St., Birmingham).

Compared with many others of its kind this is an excellent little book. So long as the author is describing Rollright he is on firm ground ; it is only when he attempts to tell us something about " the Men who erected them " that he gets out of his depth. With this warning we warmly commend the book to readers and visitors.

The Rollright Stones have attracted more attention than they deserve. The references to them before the 19th century are more frequent than references to Avebury. Perhaps this is because they lay near the crossing of two much frequented thoroughfares, and were not, like Avebury, encumbered by a village. The enclosures by which Rollright is now surrounded are modern ; in Stukeley's time (1720) the spot was a barren upland heath, and even to-day bleakness and solitude seem to linger there. Few spots are so grimly pleasing as the Rollright ridge. For the prehistorian these Oxfordshire heights have all the allurements of undiscovered country.

We venture, in a friendly spirit, to make some suggestions for the next edition. The general remarks on pages 20 to 35 need rewriting. Rice Holmes is the best guide (*Ancient Britain*, Oxford, 1907) ; and some of those mentioned in the " list of authorities " do not speak with authority. Rice Holmes deals faithfully with the astronomical theories of Sir Norman Lockyer. Indeed, in a book like the present one, the speculations of the unlearned—and Sir Norman was unlearned in archaeology—should be rigorously excluded. The " prospector " theories quoted on page 24 were never taken seriously by students and are now discredited. The drawings of flint arrowheads and other objects, between pages 42 and 43, are not very good, and it is a pity to include objects from so far away as Dorset. There are plenty of barbed-and-tanged arrowheads in the Royce collection, and there is a socketed bronze axe (from Slaughter) in the Gloucester Museum. If a drawing of a beaker is required, there are several Oxfordshire examples in the Ashmolean. Some economy could also be effected in the spacing of the illustrations, and the vacant space freed could be utilized for reproductions from the

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Gough Manuscripts or from Stukeley. The cover is in excellent taste, and a delight to those who appreciate good printing; but nowhere can we find precise information about how to get the book! Presumably it may be had direct from Mr Ravenhill at Little Rollright, but explicit directions should be given.

We wish Mr Ravenhill would go on and produce handbooks on similar lines for other districts. A good description has yet to be written of Stanton Harcourt and of the Swell district.

ANCIENT MONUMENTS OF NORTHERN IRELAND. H.M. Stationery Office, 15 Donegall Square West, Belfast; 1926. 24 pages. 6d.

The Government of Northern Ireland has set a good example by publishing this excellent, if rather slight, illustrated handbook. There are some twenty-two ancient monuments 'in the public charge.' Five admirably reproduced illustrations (four of them from Mr R. Welch's photographs) add to the attractive appearance of the pamphlet. In the next edition some plans should be added—one of the Giant's Ring, for example, would have been welcome—and a small index-map to show the position of the monuments. One thing puzzles us: although these monuments are said to be, 'in the public charge,' there is no reference to any official protector. Surely the Government must have appointed an Inspector of Ancient Monuments?

TWO GLASTONBURY LEGENDS. By J. ARMITAGE ROBINSON (DEAN OF WELLS). Cambridge University Press. 8vo, pp. xii, 68. Illustrated. 2s. 6d. net.

Underlying a legend, search will generally reveal a substratum of fact: various reasons may arise for its adorned presentation, and at once a dull and prosaic happening becomes clothed with an almost unrecognizable dress, the beauty and local colour of which tends to draw the attention entirely away from the bare bones it covers.

Glastonbury, the home of British Christianity, would naturally be expected to lend itself to the growth of legend: the mere sacredness of the spot would attract and absorb legends as they floated round. And the first coming of the Gospel to these shores would lend itself to the growth of legends which would tend naturally to fix themselves to Glastonbury.

Amongst others, two stand prominently forth, viz. that it was St. Joseph of Arimathea who brought the Gospel to England; and that King Arthur for the healing of his wounds was brought to Glastonbury, and at his death was buried within its hallowed precincts.

It is in all cases difficult, impossible in most, to say where history ends and legend begins. Only a patient study of the whole of the evidence can justify an authoritative statement. The Dean of Wells addresses himself to these two legends with scholarly accuracy; he marshalls his historical facts and makes them reveal a date before which at any rate there is no trace of these legends in connection with Glastonbury.

How they became attached to the history of the Abbey, or why, we can only guess. The fact which the writer establishes rests upon the silence of William of Malmesbury, the historian of Glastonbury. When he visited the Abbey in the early years of the 12th century at the invitation of the monks it was with the intention of acquiring from them information which would enable him to write the past history of this monastery.

It cannot be supposed that matters of such fundamental importance to the Abbey

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as the story of St. Joseph of Arimathea (to say nothing of King Arthur) would have been kept from him by the monks if they were at that time a part of the tradition of the place. On both legends William of Malmesbury is silent; he wrote in 1125.

The earliest date that can be assigned to either of the legends is 1191; that was after the great fire when every energy was being expended in the rebuilding.

But it would be unfair to take these, the conclusions of the main theme of the book, apart from the introductory note in which the writer reveals himself a keen and devoted lover of legendary lore. The conclusions reached by his historical researches in this and other fields of a similar kind are meant to convey to his readers what they apparently do to him, a veneration for tradition and an understanding of the stages by which fact gradually assumes local colour and emerges ultimately in full dress.

There are seven additional notes at the end of the book, all of them of great interest. It is a happy thought that has induced the Dean to place where they can be so easily reached the results of what must have been long and patient study.

The "Old Church" at Glastonbury, no. 11 of the seven, will be constantly consulted by those who in the future have to work upon the Abbey site. It corrects a curious error which has crept into Professor Willis' *Architectural History of Glastonbury* (1866).

Note v treats of the *Two cruets of St. Joseph of Arimathea*. Father Horne in *Somerset and Dorset Notes and Queries* (xviii, 254) has already added four more to the list of known occurrences of these heraldically represented. Quite possibly there are more; an exhaustive list would be useful and interesting.

T. F. PALMER.

THE AMARNA AGE. By REV. JAMES BAIKIE, F.R.A.S. London: A. and C. Black. 1926. pp. 458, with 32 plates and 5 maps. 12s. 6d.

There are books that can be read in an armchair with one's feet on the mantelpiece, and others that have to be read in a stiff-backed chair with a cold water bandage round one's head. Those written in a narrative style, setting forth conclusions drawn from former reports, belong to the first category, provided that the author has command of his words; while first accounts of new discoveries, which, to be successful, must needs be in the form of a connected catalogue, naturally come under the second. The "Amarna Age" however can safely be read in an armchair without any fear of falling asleep. The author has literary power and the gift of apt metaphor.

In 1887 more than 300 tablets in cuneiform character were discovered at Amarna. They consist of letters and dispatches to the kings of Egypt from the kings and governors of the neighbouring Asiatic countries. They disclose much valuable information concerning Babylon, the Hittites, Assyria, Mitanni, Cyprus and the Amorites; and their discovery is probably the most important that has ever been made in Egypt. On the events and the life of the time during the XVIIIth Dynasty they throw much light. It is of this period that the book treats—"the crisis of the ancient world" as the author terms it.

Thotmes III, the Napoleon of Egypt, was instrumental in establishing his country as the leading military power. He was followed by Amenhotep II, famous for his splendid buildings and artistic achievements. With him "culminated the material glories of the new empire." After the reign of Amenhotep III the decline begins. There was a great admixture of foreign blood during the XVIIIth Dynasty, and the race gradually became less pure and art lost some of its ancient traditions. Amenhotep IV, "the world's first pacifist," altered his name to Akhenaten when he changed the

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national religion from Amenism to sun-god worship and the recognition of a universal deity. Such an idealist was no match for the restless schemers across the frontiers. His successor Tutankhamen reverted to Amenism under pressure from the priests. Horemheb, the last of the Dynasty, was a conscientious ruler who re-established law and order.

Not the least important chapters in the book are those devoted to descriptions of the rival nations: the Minoans and their tragic collapse; the Hittites, whose heyday lasted but for two or three centuries; the Mitanni; the Babylonians, who gave the world "the first fruits of knowledge and culture"; the Assyrians, valiant in arms. "The lands were all linked with one another by a network of perfectly well-defined trade routes," and "international relationships were just as real and active as they are to-day, though perhaps somewhat slower in their methods of communication."

R. C. C. CLAY.

ANCIENT PERSIA AND IRANIAN CIVILIZATION. By CLEMENT HUART.
London Kegan Paul. 1927. pp. 223 with 4 plates, 35 illustrations, and map.
12s. 6d.

This is, as Henri Berr says in his foreword, a "work of synthesis." The author, Clement Huart, has succeeded in the difficult task of giving in a concise and readable form a veritable encyclopædia of Persian history. The trees do not obscure the wood; and in spite of the mass of detail and the profusion of names anyone interested in the history of the East can read this book with both pleasure and profit.

Chapter I gives an excellent account of the physical configuration of Persia, but the absence of a really good map is regrettable. A short and lucid chapter on the Persian scripts follows.

The unification of the Medes into a single nation by Deioces was facilitated by a period of good relationship with the Assyrians. His successor Phraortes, a more aggressive man, suffered a disastrous defeat. Cyaxares remodelled the army and carried war into Assyria, but was robbed of the fruits of victory by the invasion of his own country by the Scythians, who were routed only after a hard and none too sportsmanlike campaign. Allied with the Babylonians, the Medes defeated the Assyrians and sacked Nineveh. Soon however they were to fall to the military genius of Cyrus, king of the Persians, and to be incorporated with his immense empire "which took an Alexander to overthrow two and a half centuries later." The success of this empire was due in no small part to its statesmanlike toleration of subject peoples. Cambyses, the son of Cyrus, conquered Egypt and turned his attention to Carthage. The Phoenicians refusing him the help of their fleet, he sent an army across the Sahara but it was destroyed in a sand-storm. An expedition against Nubia also failed. Cambyses returned home after an orgy of brutality at Memphis, only to find his kingdom in revolt. Failing to suppress the rebels, he died—probably by his own hand. Darius, after subduing insurrections in all parts of the empire, set up an efficient system of satrapies and built and maintained great military roads. He attacked Thrace and southern Russia. In 490 the Persians suffered a crushing blow at Marathon. Later on Xerxes captured Athens, but after the battle of Plataea the Persians retreated. A period of internal strife under a line of weak kings led up to the disintegration of the empire following Alexander's triumphal campaigns. The great Achaemenian empire flourished by reason of its efficient organization and the ruthlessness which was meted out to those who disobeyed its despotic rulers.

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"Persian art was a composite art born of the royal fancy, which had gathered into an artificial, powerful unity, like the empire itself, every artistic form which struck it in the provinces of Assyria, Egypt and Ancient Greece. It was the caprice of an omnipotent dilettante with a love of size."

Persia came under Hellenic influence during the period of the Parthian Arsacids. The special feature of the "government of the Sassanids as compared with that of their immediate predecessors, the Arsacids, was the centralization of the powers of the state in the hands of an absolute monarch, supported by an exclusive religion."

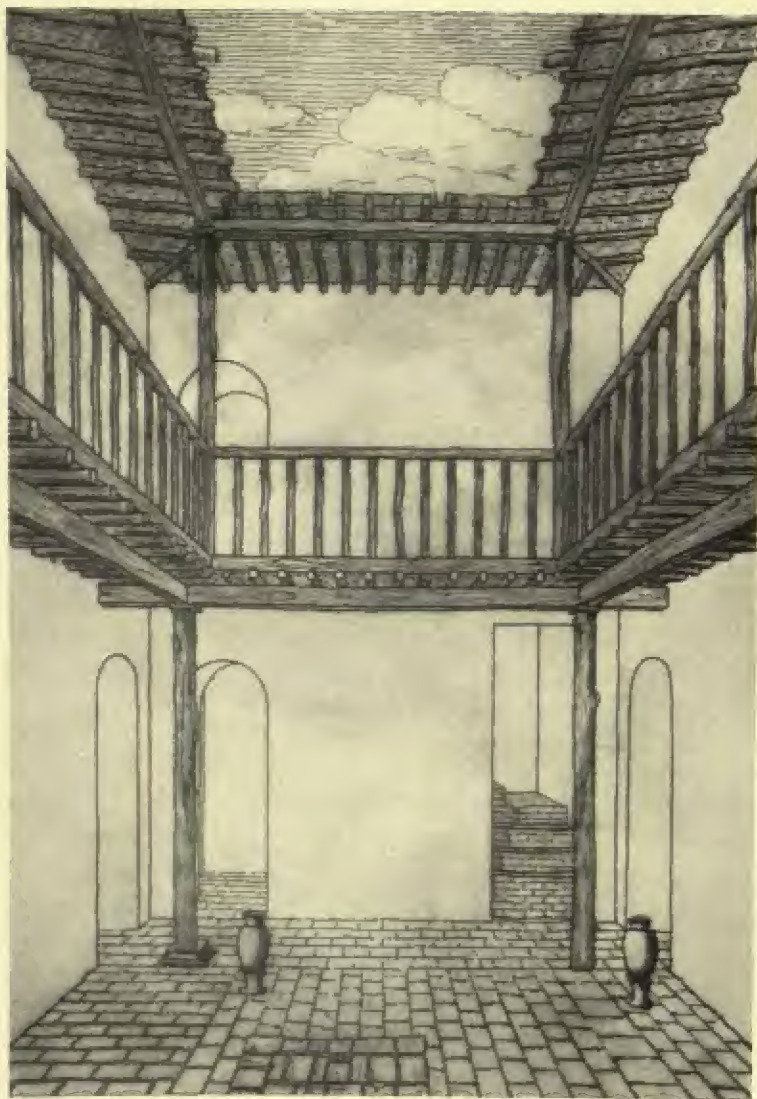
R. C. C. CLAY.

AGRICOLA'S ROAD INTO SCOTLAND: THE GREAT ROMAN ROAD FROM YORK TO THE TWEED. By JESSIE MOTHERSOLE, with illustrations in colour and black and white by the Author. London: John Lane, 1927. 10s. 6d.

Readers of Miss Mothersole's "Roman Wall and Saxon Shore" will welcome her new book. Her title brings out the unity and historic significance of a road known locally by a variety of names: Leeming lane in Yorkshire; Dere street across the old bishopric of Durham and far beyond the Border; Watling street in recent books but never in the mouth of the people; High street and Gamelspath for short stretches. She follows this trunk-road for 140 miles, sketching Roman ruins and their setting, noting scenery and small adventures by the way, making friends with country people and enjoying rough quarters. But it is much more than a book of pictures and travel-talk. It sums up for the first time what is known about the road and twelve Roman sites that lie beside it, giving a sketch-map of each and extracts from old writers who saw more than exists to-day. When there has been exploration, on six of these sites, plans and drawings are reproduced and the excavators' conclusions are summarized with excellent judgment.

Traces of Agricola's army were found at Corbridge on Tyne, Cappuch, and Newstead on Tweed; the pre-scientific work at High Rochester (1855) and Binchester (1880) threw no light on the earliest occupation, while that at Risingham (before 1840) was demolition rather than excavation. From the legionary base at York the road went first to Aldborough, a tribal capital which was to York as Caerwent to Caerleon, a walled town of 60 acres with mosaic floors and other signs of civil life. Thereafter we have a chain of military posts, mostly at river-crossings; six or seven leave some record of a Roman bridge; we can judge of them from remains of the bridge across the Tyne, 154 yards long with ten water-piers. Excavation is needed to ascertain whether Catterick, Piercebridge, and other forts on the southern half of the road retained their garrisons permanently. At Binchester part of a substantial civil settlement has been uncovered outside the fort, and Corbridge grew into a town as well as a military base behind the shelter of the Great Wall. Farther north the remains are purely military and—as the landscape grows wilder and tillage is left behind—astonishingly well preserved. For 35 miles across the Northumberland moors and through the Cheviots we come again and again on abiding footprints of Rome, the lines of temporary camps thrown up by troops on the march still clearly defined in the grass or heather. Once clear of the pass, Dere street descends into Teviotdale and runs straight as a dart for the Eildon Hills. Beneath that triple-peak lies Newstead, Ptolemy's *Trimontium*. Miss Mothersole ends her volume with an admirable chapter on Mr Curle's excavations in this, the largest military station north of York, and a colour-drawing of Sir Walter Scott's favourite view of Tweed and the Eildons from Bemersyde Hill.

R. C. BOSANQUET.



A PRIVATE HOUSE AT UR OF THE CHALDEES, ABOUT THE TIME OF ABRAHAM
From a drawing by A. S. Whitton, A.R.I.B.A.,

Antiquity

A Quarterly Review of Archæology

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Editorial Notes

ONLY in very exceptional cases can we lend support in these pages to an appeal for funds, but we gladly do so on behalf of the excavations at UR in Mesopotamia. The importance of the joint work of the British Museum and the Museum of the University of Pennsylvania is not fully realized in this country. It is important primarily because here more than anywhere else in the world the origins of civilized life are to be looked for. We know that UR was a flourishing city three thousand years before Christ ; for, in the first season's work there Mr Woolley found an inscribed foundation-tablet of one of its earliest kings, A-anni-padda, whose father, already known but as a name only, had been suspected of being mythical ! A-anni-padda lived about a thousand years—not less—before Abraham, whose home also was in UR ; and to him A-anni-padda must have seemed a dim and shadowy figure, hidden in the mists of antiquity. Yet actually the stone which he laid as the foundation of his temple and on which he inscribed his name, and a seal with the name of his mother upon it, are among the finds of the recent excavations.



But A-anni-padda himself was preceded at UR by many generations of civilized people. During the last season's work three cemeteries were found, the oldest going back at least as far as 3500 B.C. 'The

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objects from the graves were such as no previous excavations in Mesopotamia have produced, and it was noteworthy that in richness, in quality, and in technique they were better in proportion as they went back earlier in time. Though we have reached the oldest datable strata yet found . . . it is clear that we have to deal with a civilization which, if not already decadent, had at least been in existence for many centuries.' (*Nature*, 23 July). Mr Woolley then describes the amazing gold and silver implements and jewelry found in the graves ; and he concludes by stating that ' the season's work has produced a mass of material, much of it entirely novel, the importance of which for the early history of Mesopotamia it would be difficult to exaggerate. I am glad to say there is every reason to believe that discoveries of no less importance await us next winter.'



The work at UR has been going on every winter since 1922, and Mr Woolley has gathered together and trained a staff of native diggers. (The excellent photographs of seal-impressions reproduced opposite p. 342 were taken by one of his native assistants). The existence of such a trained staff has a capital value which all excavators will appreciate. Further, there has now been uncovered, systematically and with the greatest skill, a larger single area of buildings than has ever been revealed on a Sumerian site ; previous work on other sites has too often been confined to the unsatisfactory method of trial-trenches. Every future season's work is therefore doubly important, for it adds to the completeness of an already coherent ground-plan. In the next number we shall publish an important article by Dr H. R. Hall, Keeper of Egyptian and Assyrian Antiquities in the British Museum. Dr Hall was actually the first, in modern times, to excavate at UR, in 1918-19 ; and he will give a general and authoritative summary of the results achieved by recent excavations. We have also been promised an article by Dr Langdon, who is directing for Mr Weld-Blundell the excavations at Kish on behalf of the University of Oxford and the Chicago Field Museum. Both articles will deal with the thorny question of chronology. We understand that Dr Langdon and Professor Fotheringham will shortly publish, through the Oxford University Press, a book dealing with the system of astronomical dating recently outlined by them.

EDITORIAL NOTES

We referred recently in these pages to the progressive disfiguration of rural England. The latest area threatened is the immediate neighbourhood of STONEHENGE. It might seem incredible that it should have been seriously suggested to erect a row of bungalows in the Avenue field immediately opposite the old stones, but a tea-shop, complete with flags, has already been built there, and plans are actually in existence for extending waterpipes and drains to the Amesbury road. Readers of ANTIQUITY will need no editorial promptings to support the scheme to thwart this vandalism. It is proposed to buy out the owners of the land, vesting it in the safe-keeping of the National Trust. The appeal has the support of the Prime Minister, Mr Ramsay Macdonald, Viscount Grey of Fallodon, Lord Crawford, Lord Radnor, the members of Parliament for Wiltshire and Mr J. C. Squire, the literary critic and editor of the *London Mercury*, who was closely associated with much of the preliminary organization. So strong a lead will, we hope, be followed by archaeologists all over the world, irrespective of nationality. Subscriptions should be sent to the Secretary of the National Trust, 7 Buckingham Palace Gardens, London, S.W. 1.



Most of the recent literature on the subject of GLOZEL has been devoted to acrimonious controversy. One might imagine that controversy would be confined to the subject of the authenticity of the finds, but not at all. M. Camille Julian and Dr Morlet, to mention only the protagonists, are engaged in a lively dispute as to whether the objects are the stock-in-trade of a Gallo-Roman witch-doctor, or whether they belong to the neolithic period. Much ink has been spilt in the *Mercure de France* over this matter. There are also cross-currents which we confess we are unable to follow altogether, and a good deal of heat has been generated.

But the beginning of the end is in sight !



The 'memorable days of scientific control' have begun in earnest with a visit of Monsieur A. Vayson de Pradenne, a civil engineer. He has published an account of his two visits in the *Bulletin de la Société Préhistorique Française* (June 1927). We shall not repeat at length his opinion of the objects themselves, since this opinion coincides very closely with the views given in our last number. Let it suffice that

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he regards none of them as ancient, with the exception of a few scanty relics connected with the glass furnace. This latter he considers as belonging to a type which remained in use until the end of the 18th century. Monsieur Vayson de Pradenne visited Glozel in June and July of this year, and conducted excavations there. He pays tribute to the sincerity, no less than to the fanaticism, of Dr Morlet's faith. Having arrived on the spot, he dug in the neighbourhood of a trench where antiquities were said to be very abundant. They were indeed : but it was observed that they gave out entirely when the excavations were conducted at a distance from the trench. Whereas a few cubic feet of earth near the trench yielded several engraved pebbles, a much bigger excavation at some distance yielded absolutely nothing. But the most interesting and damning result of Monsieur Vayson de Pradenne's work was his discovery in the soil of a hole of soft earth at the end of which was an engraved pebble. There was no doubt in his mind that this hole was the passage, made from the side of the old trench, through which the pebble itself had been introduced, and Fradin himself admitted that these patches of soft earth were the usual sign that 'antiquities' were coming. It is perfectly plain that the 'Spirit of Glozel,' as Monsieur Vayson de Pradenne delicately describes it, has salted the site pretty thoroughly by this means, and that the objects found have been introduced into the ground in this way. Monsieur Vayson de Pradenne concludes that there is 'great need of further work [like his own] to be carried out at Glozel, in view of the importance with which the matter is attended.' He adds a warning that any such undertaking should be hedged around with every kind of precaution 'since the Spirit of Glozel is undoubtedly ingenious.' If one suspects lateral penetration from a short distance, perhaps the objects will penetrate much further ; perhaps an attempt will be made from above. If local preparation of the ground at short notice becomes difficult, perhaps preparations will be made on a much larger scale. In any case, one must prepare for a serious battle, for the game is worth the candle, and the 'Spirit of Glozel' which has already given fine proof of courage and tenacity will fight desperately before admitting defeat.



We regret that in the first impression of number 1 of ANTIQUITY (p. 114) Mr Mackay was wrongly described as an American, instead of British. The error is corrected in the reprint.

PLATE I



SKYE CROFTER USING THE CASCHROM

PA. H. B. CURWEN, 1920

facing p. 261

Prehistoric Agriculture in Britain

by E. CECIL CURWEN

THE importance of the part played by agriculture in the economic history of our country is sometimes apt to be forgotten, for its place has, during the past hundred years, been largely taken by manufacture. Down to the beginning of the nineteenth century the bulk of the population still made a living by tilling the fields, just as their fathers had done from time immemorial. It becomes, therefore, a matter of great interest to trace the beginnings and growth of agriculture in our country before the dawn of history.

Agriculture may be taken in its broadest sense to signify the artificial growth of plants for human use, as opposed to the gathering of wild products, but the term may also be narrowed down to cover only the cultivation of farinaceous seeds which we call cereals. It is chiefly in the latter sense that the subject will be discussed here, but it must be remembered that the nature of the evidence does not altogether allow of such a distinction.

Nature seems to have decreed for man a mixed diet of flesh and vegetable, and there seems no reason to doubt that this has always been so. We know that in ancient times nuts, acorns, and berries formed an important part of his diet, but it remains to be seen at what part of his cultural history the idea occurred to him to grow useful plants near his own door, and more especially those which we class as cereals. From the perishable nature of the evidence it is scarcely possible to say that at any given period agriculture of some sort was *not* practised ; all we can say is that proof exists that it was known as far back as such-and-such an epoch. Such evidence falls into five main classes, viz., that afforded by the discovery of (1) actual grain, (2) sickles, (3) instruments for grinding corn, (4) instruments for breaking the ground, and (5) the actual fields cultivated. Each of these will be discussed in its turn.

(1) CEREALS

The earliest cereals to be cultivated by man were wheat and barley. In this the testimony of archaeology and of tradition agree. The

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origin of the wheats has been traced with great probability to wild varieties which are still to be found growing in a region which extends from the Balkans through Roumania, south Russia, Asia Minor, Mesopotamia and Palestine.¹ Of these wild grasses the most important is *Triticum dicoccoides*, which still grows in Syria and northern Palestine. Similarly the six-rowed barley of antiquity is derived from a wild variety which has been found growing in the same locality. In the ancient civilizations of Mesopotamia there seems hardly to have been a time when agriculture was unknown, while in Egypt wheat and barley seem to have been introduced by a pre-dynastic people from the neighbouring parts of Asia.²

When we turn to tradition we find that not only were wheat and barley said to have been introduced simultaneously into China at the dawn of her history, but the use of the same two cereals was taught to the men of Egypt by the goddess Isis, whose husband Osiris, according to Diodorus Siculus, found them growing wild in the neighbourhood of Nysa in that part of Arabia which is not far from Egypt. In the Homeric hymn to Demeter we learn that it was in the fields of Nysa that Persephone was gathering flowers when she was carried off by Hades, and Pliny identifies Nysa with Scythopolis, the Bethshean of the Bible, a few miles south of the Sea of Galilee. It is in this very district, and, so far as is known, in no other, that the wild prototypes of wheat and barley are still found growing together.

The early connexion between these cereals is also illustrated by the fact that the same Indo-European root seen in the Avedic word *yava* appears in the Greek *ζία*, meaning 'wheat,' and in the Persian *djau*, meaning 'barley.'

These facts and traditions all point to the very early evolution of the cultivation of at least two cereals, and probably later of others also, in the lands bordering on the eastern end of the Mediterranean.

¹ Dr Otto Stapf ('History of the Wheats,' supplement to *Journ. of Board of Agriculture* (June 1910), xvii, 81, thus summarizes this question:—

- (1) *Triticum monococcum*, derived from the wild variety *T. aegilopioides*, found in Asia Minor and the Balkans.
- (2) *T. dicoccum* ('Emmer'), *T. durum*, *T. turgidum*, *T. polonicum* derived from *T. dicoccoides*, found in Palestine and Syria.
- (3) *T. vulgare* and *T. compactum*, derived from an unknown variety probably to be sought in Syria or Mesopotamia.
- (4) *T. spelta* derived from *T. cylindricum*, found in Bulgaria, Roumania and South Russia.

² *Guide to Egyptian Coll. in British Museum*, 22.

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How and when did this knowledge spread to Europe, and to Britain in particular?

The art of agriculture seems to have found its way into Europe, along with that of weaving, by way of Troy and the Danube valley, and to have been diffused with the neolithic culture. Evidence of it is found in the earliest Danubian period (*c.* 3000–2500 B.C.), and wheat and barley have been discovered in the remains of the second period (*c.* 2500–2000).³ The contemporary lake-dwellings of Switzerland have yielded no fewer than ten varieties of barley, wheat and millet.⁴ Spelt, rye and oats do not appear there until the Bronze Age.

In Britain, grain, probably wheat, has been found in a definitely neolithic site at Rothesay, associated with characteristic neolithic pottery and saddle-querns. I am indebted to Mr J. Graham Callander for this information and for allowing me to publish it. The next earliest traces consist in the impressions of two grains of wheat in the clay forming the bottom of a 'beaker' belonging to the early Bronze Age (*c.* 1800 B.C.), found by Mr. James E. Cree, F.S.A. Scot., in a kitchen-midden at Tusculum, North Berwick.⁵ Almost as old are three grains of carbonized wheat found in a Yorkshire barrow by Mr J. R. Mortimer, embedded in the side of a food-vessel belonging to Abercrombie's type 1A (second period of the Bronze Age),⁶ while about two pints of charred wheat were found by Mr J. Graham Callander, F.S.A. Scot., in the Culbin Sands, Morayshire, with what appear to be the remains of a Bronze Age vessel.⁷

When we turn to the sites occupied during the early Iron Age, evidence is more plentiful. Dr Clay found quantities of Emmer wheat and six-rowed barley in the La Tène I villages at Fifield Bavant and Swallowcliffe, Wilts (*c.* 400–250 B.C.).⁸ Mr and Mrs B. H. Cunningham found wheat also in the contemporary site at All Cannings Cross.⁹ The Glastonbury lake-village yielded wheat, two varieties of barley,

³ V. Gordon Childe, *The Dawn of European Civilisation* (London, 1925), *passim*.

⁴ Keller, *Lake Dwellings of Switzerland* (2nd ed., 1878), i, 518–36. In the ancient literature of Ireland eight varieties of wheat, barley and oats have distinct names; see O'Curry, *Manners and Customs of the Ancient Irish*, i, p. cccxii.

⁵ *Proc. Soc. Antiq. Scot.*, xlii, 288–9.

⁶ J. R. Mortimer, *Forty Years Researches in the Burial Mounds of E. Yorks.* (1905), 111–12.

⁷ *Proc. Soc. Antiq. Scot.*, xlv, 158–65.

⁸ *Wilts. Arch. Mag.*, xlii, 493–4; xliii, 90.

⁹ M. E. Cunningham, *All Cannings Cross*, 52, 60.

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and also the Celtic broad bean.¹⁰ Similarly the hill-top and other camps of the early Iron Age have produced wheat and barley, as Worlebury,¹¹ Hunsbury,¹² Lidbury,¹³ and Winklebury.¹⁴

Mr Callander refers discoveries of wheat at Camphill (Glasgow), Borness Cave (Kirkcudbright),¹⁵ and the crannog in Barhapple Loch (Wigtownshire) to the early Iron Age in Scotland—probably the first few centuries of our era; while barley has been found in the crannog at Erskine Ferry (Old Kilpatrick).¹⁶ A cereal is also mentioned in connexion with a cave at Wemyss (Fife).¹⁷

As to the period in which the cultivation of oats (*Avena sativa*) was introduced into Britain there is very little evidence. It is believed to have been derived from the wild *Avena fatua*, a native of south Europe and western Asia,¹⁸ and, as is stated above, is first found cultivated in Switzerland late in the Bronze Age. The earliest specimens of oats found in Britain seem to be those discovered by Dr Clay at Fifield Bavant (La Tène I—c. 400–250 B.C.).

Of the northward spread of the knowledge of cereals there is corroborative evidence in the shape of the seeds of the common cornfield weeds which are sometimes found among the grain. In the Swiss lake-dwellings these included the 'Cretan Catchfly' (*Silene Cretica*, L.) and the 'corn blue-bottle' (*Gentaurea cyanus*), both of which are natives only of the Mediterranean countries, thus indicating the quarter from which this corn had been introduced into Switzerland.¹⁹

Unfortunately our knowledge of the early cereals of Britain does not yet extend to the cornfield weeds. Clement Reid says: "In time we shall probably be able to use the weeds of cultivation as we do coins for the dating of antiquities; for each period saw the introduction of new cultivated plants, or new varieties, and with each cultivated plant

¹⁰ Clement Reid, in *Glastonbury Lake Village*, ii, 628.

¹¹ Dymond, *Worlebury* (1903), 80.

¹² *All Cannings Cross*, 60.

¹³ *Wilts. Arch. Mag.*, xl, 23 (pit 8).

¹⁴ Pitt Rivers, *Excavations in Cranborne Chase*, ii, 229.

¹⁵ *Proc. Soc. Antiq. Scot.*, x, 490.

¹⁶ *Ibid.*, xlv, 164.

¹⁷ *Ibid.*, x, 478.

¹⁸ *Encycl. Brit.*, s.v. OATS.

¹⁹ Keller, *Lake Dwellings of Switzerland*, i, 522, 524.

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is usually introduced the special set of weeds of its place of origin."²⁰ This opens up a useful field of enquiry regarding the beginnings of agriculture in Britain.

(2) SICKLES

The existence of a sickle is evidence of the practice of some form of agriculture.

In the early Iron Age iron sickles are fairly common, and consist each of a curved, hook-like blade, sharpened in the concavity, and mounted by means of flanges beaten round the wooden handle. The length of the blade does not usually exceed eight inches, and may be as little as two and a half inches.

Going back to the Bronze Age we find socketed bronze sickles of much the same general shape as their iron derivatives. Indeed, at Llynfawr a socketed iron sickle was found with a bronze one which was evidently the model for it.²¹ Being socketed they are probably late, and this variety is confined to Britain and northern France. The flat kind, which is earlier in point of evolution, is rare in this country, but common in south Europe.²²

This evidence, then, carries us back to the Bronze Age. Is there any earlier evidence? In a few localities in Britain beautifully worked flint knives with curved points have been found, and it has been suggested with fair probability, though hardly with certainty, that these were used as sickles,²³ for they bear some resemblance to the wonderful crescentic flint knives, serrated on the straighter (concave) edge, which are confined to Scandinavia and north Germany.²⁴

But more definite light on this question comes from Egypt, where Sir Flinders Petrie found two sickles consisting of serrated flint flakes set in a curved wooden frame, and belonging respectively to the twelfth and eighteenth dynasties.²⁵ From these it appears that the characteristic shape of a sickle is derived from that of the jaw-bone of an ox or other animal, and there is some reason to believe that at one time the actual jaw-bone was used for the purpose, the natural teeth

²⁰ See A. Bulleid and H. St. George Gray, *Glastonbury Lake Village*, ii, 627.

²¹ *Archaeologia*, lxxi, plate ix.

²² Evans, *Ancient Bronze Implements*, 194-203.

²³ *Guide to the Stone Age*, British Museum (1926), 104-5.

²⁴ Evans, *Ancient Stone Implements* (2nd ed.), 297.

²⁵ The information contained in this and the succeeding paragraphs of this section is derived from a paper on early sickles by F. C. J. Spurrell, *Arch. Journ.*, xlix, 53-68.

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being replaced by artificial ones of flint. Such serrated flints are found in Egypt dating from the earliest times up to the Roman period, and some thick and clumsy ones, which had probably been set in an actual jaw-bone, were found in the Amorite and early Hebrew strata of the ruins of Lachish (Tel-el-Hesi) in Palestine.²⁶

One characteristic of these serrated flakes which is constant (except in presumably new and unused specimens) is the polish which extends along both sides of the serrated edge as far as the line where the flint is protected by the cement whereby it was fixed to the wooden frame. Mr F. C. J. Spurrell, who studied this question very exhaustively, made experiments with similar serrated flakes, and found that prolonged sawing of bone, horn or wood failed to produce any polish on the flint used, but that such polish was acquired by the lengthened cutting of ripe straw, owing to the presence of organic silica in the latter. This is an important observation because it enables us to say with certainty that any serrated flint with a polished edge was used for cutting stalks—presumably corn, but possibly other grasses. Such polish is actually found on the straighter (concave) edge of the Scandinavian crescentic blades alluded to above.

Serrated flint flakes, similar to those of Egypt, have been found in all five prehistoric cities at Hissarlik (Troy), also in Irak and Macedonia. Moreover, two fragments of what look like wooden sickles bearing flint teeth have been found in the lake-dwellings of Switzerland²⁷ and Italy.²⁸ When, therefore, such flakes are found in Britain, a polished edge should be taken as an indication that the specimen formed part of a sickle. Examples of these flakes, a large proportion having polished edges, come from the barrows of Yorkshire and elsewhere,²⁹ and are presumably to be assigned to the early Bronze Age. If such sickles were used in the neolithic period here, as they were elsewhere, they are unfortunately indistinguishable from the Bronze Age specimens, but flakes with polished and serrated edges abound in the late neolithic camp on Windmill Hill, near Avebury.

²⁶ For flint sickles from Palestine see Prof. R. A. S. Macalister, *A Century of Excavation in Palestine* (1925), 232, and p. 308 of this number of *ANTIQUITY*.

²⁷ At Vinelz (Bienne); *Mitt. der Ant. Gesellschaft, Zurich*, xxii, pl. xvii, f. 3.

²⁸ Munro, *Lake Dwellings of Europe*, fig. 67, no. 12. Dr Munro does not agree that the Swiss specimens are sickles—see *Arch. Journ.* xlix, 164-75.

²⁹ Evans, *Anc. Stone Impl.*, 295; Greenwell, *British Barrowes*, 262.

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(3) IMPLEMENTS FOR GRINDING CORN³⁰

A rock-basin in which a round or elongated stone could be worked is a form of pounding-apparatus that goes back to a very great antiquity, and is one which served primarily to pound nuts, acorns, or other similar objects. When corn first made its appearance it was probably treated in the same manner—pounded, rather than ground. The next step in development was the introduction of an instrument more suitable for grinding corn, which acted by rubbing rather than by pounding. This is the 'saddle-quern',³¹ an instrument in which a smaller stone is rubbed backwards and forwards on a larger, and which first appears in Britain towards the close of the neolithic period. While the older rock-basin continued in use for other purposes,³² and ultimately developed into the modern pestle and mortar, this new instrument seems to have been invented and exclusively used for the purpose of grinding corn. Its presence, therefore, in any epoch, is an indication that agriculture was known and practised.

In Egypt as early as 2300 B.C. we have models representing a girl grinding corn on a saddle-quern, in a kneeling posture, and alternately pushing the upper stone from her, and drawing it towards her. This will illustrate the propriety of the preposition in the phrase—"the maidservant that is *behind* the mill" (Exod. xi, 5).³³

In our own country the earliest specimens were found by Mr Alexander Keiller in the neolithic hill-top camp on Windmill Hill, Avebury,³⁴ and by Major Wade deep down in the shaft of a neolithic flint-mine at Stoke Down, Chichester.³⁵ The presence of these specimens is sufficient to indicate that agriculture was known and practised at this date. In the museum at Devizes, Wilts., is another specimen from a long barrow on Oldbury Hill,³⁶ and yet another

³⁰ Much of the material contained in this section is derived from Richard Bennett and John Elton, *History of Corn-milling* (London and Liverpool, 1898), i, chaps. i-v.

³¹ So named in common parlance, though the term 'quern' is probably only strictly applicable to the rotary variety.

³² Mortars continued to be used for corn, along with saddle-querns right down to Pliny's time, and are still in use in Africa and India. Cf. Numbers xi, 8; Ovid, *Fasti* vi, ('*Cereris cava machina*'); Columella, *R.R.* 12,55; Pliny, *N.H.* 18,23; etc.

³³ Just as we call the lower stone a 'saddle' from its shape, so the ancient Hebrews called the upper stone a 'rider' (*rekhebh*).

³⁴ Referred to here by Mr Keiller's kind permission.

³⁵ *Proc. Prehist. Soc. E. Anglia*, iv, fig. 2, p. 86

³⁶ *Devizes Museum Catalogue*, pt. ii, 24 (x 96 A).

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found with a 'beaker' at Winterbourne Monkton,³⁷ dating from the beginning of the Bronze Age.

Saddle-querns continued to be used in Britain right up to the Roman period, and are still used by the natives of Central Africa, South America and Mexico. But at about the end of the La Tène I period (c. 250 B.C.) the rotary quern first makes its appearance in this country, the earliest specimens coming from Dr Clay's excavation of the La Tène I village at Fifield Bavant, Wilts, where they formed a minority of one to ten among saddle-querns.³⁸ Thereafter in the other excavated sites rotary querns become more and more predominant, until at Glastonbury (La Tène III, c. 100-1 B.C.), they form a majority of two to one.³⁹ Those of the early Iron Age are conical, or beehive-shaped; the Romans seem to be responsible for the introduction of the flat, discoidal variety which survived in use in the Hebrides down to the last century.

(4) INSTRUMENTS FOR BREAKING THE GROUND

From the nature of the case the origin and history of the plough in these islands is obscure, and yet it is one of the most important branches of the study of our ancient agriculture, because on the type of plough used depend the shape and characteristics of the field ploughed.

Plough-shares of the early Iron Age and Roman period are not uncommon, and consist of a simple metal point designed to fit on to the share-beam, without any device for undercutting and turning over the sods. Such a plough simply scratches a groove in the soil, throwing up a very small upcast on each side, most of which falls back into the furrow. Coulters were used in the Roman period, and Wright figures a model of a Romano-British ploughman using a simple plough of this kind drawn by two oxen.⁴⁰

Of the ploughs of the Bronze Age we have little direct knowledge; a bronze plough-share was found at Holderness, but from its shape one is inclined to doubt whether it can be attributed to the Bronze Age. Stones, however likely, can scarcely be admitted as evidence without definite proof. But that stones were used for a similar

³⁷ *Ibid.* (x 95).

³⁸ *Wilts Arch. Mag.* xlii, 478-9.

³⁹ *Glastonbury*, ii, 609.

⁴⁰ Wright, *Celt, Roman and Saxon*, 209.

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purpose in the neolithic period in central Europe is inferred from the frequent discovery of 'shoe-last celts,' which, it is thought, were used as hoes in breaking up the ground.⁴¹ A rock-carving at Bohuslän in Sweden, attributed to this period, depicts a man ploughing with two oxen,⁴² and another in the Alpes Maritimes shows a similar plough and team followed by a harrow also drawn by two oxen. The latter is attributed to the beginning of the metal age.⁴³

When did the plough, properly so-called, first appear in Britain, and what kind of implement had previously been used for the same purpose? The Swedish plough of the Bronze Age, alluded to above, is the earliest of its kind of which we have knowledge in northern Europe, and we can believe that its introduction into this country would be a gradual process—a process which, strange to say, is not yet complete. In the island of Skye and in the Hebrides is still to be found a very primitive form of implement, called a *caschrom* or foot-plough, with which the crofters drive their furrows without the aid of horse or ox. This instrument, of which the Gaelic name means literally 'bent foot,' consists of a stout curved handle, some 5½ feet long, set at an angle of 120° into a foot-piece nearly 3 feet long, the point of junction of the two parts being strengthened and made absolutely rigid. Into the right hand side of this angle is set a peg for the crofter's foot, and the toe of the implement is shod with a rough iron point, not unlike the plough-shares of the early Iron Age.

The method of use is as follows: the crofter drives the foot-piece obliquely into the ground by means of a double jerk of his foot upon the peg (plate 1). Then by depressing the handle he levers up the sod, contriving at the same time to turn it over to his left. Finally he takes a step backwards and repeats the process, thus making a continuous, if somewhat wavy, furrow the whole length of his plot.⁴⁴ In this way a man reckons to 'plough' about a tenth of a Scots acre in a day—about twice as much as he would be able to do with an ordinary spade or fork.

That some such instrument as this was in general use in Britain and western Europe before the introduction of the traction plough⁴⁵

⁴¹ Childe, *Dawn of European Civilisation*, 172, 177, etc.

⁴² M. C. Burkitt, F.S.A., *Prehistory* (Camb.) 1921, pl. xlii.

⁴³ *Congrès internat. d'Anthr. et d'Archéol. préhist.*, 1874, i, 454 (fig. 1), 473 (fig. 31); also Burkitt, *Our Early Ancestors*, 54n, and pl. xxviii, fig. 1.

⁴⁴ See *Stat. Acc. Scotland*, vi, 288–9 (1793).

⁴⁵ That is, a plough drawn by animal labour.

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seems to be indicated by the following evidence gathered from Brittany, Somerset and Wales.

(1) In the Pitt-Rivers museum at Farnham is preserved an old Breton plough, which consists of nothing else than a caschrom fitted with a beam and coulter for traction by oxen. That this kind of plough was produced by adaptation of the caschrom can hardly be doubted when the two instruments are seen side by side, especially when it is noticed that even the peg is preserved, albeit moved further up the handle to provide a grip for the right hand instead of for the foot (figs. A and B). This seems to indicate that the caschrom was at one time used



A

A. CASCHROM FROM SKYE

B

B. OLD PLOUGH FROM BRITTANY

in Brittany. A very similar plough is said to be figured on a Roman tombstone.⁴⁶

(2) An oak foot-plough, not unlike the caschrom, was found in the lake-village at Glastonbury.⁴⁷ This belongs to the latter part of the early Iron Age.

(3) In that curious collection of Welsh tradition, known as the "Triads of the Isle of Britain" occurs the following remarkable information: "Elldud, the holy knight of Theodosius, [was one of the three benefactors of the Cambrian nation because he] improved the mode of ploughing land and taught the Cambrians better than was known before, and he gave them the system and art of cultivating lands as is used at present; for before that time land was cultivated only with the mattock and over-tread plough (*arad arsang*), after the manner of the Irish (*Gwyddelod*)."⁴⁸

⁴⁶ Meitzen, *Siedelung und Agrarwesen der Germanen*, i, chap. iv, fig. 30.

⁴⁷ *Glastonbury Lake Village*, i, 348.

⁴⁸ Probert, *Ancient Laws of Cambria*, 396, Triad no. 56.

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Whatever view may be taken of the date and historical trustworthiness of this compilation—and at least one statement in this triad (not included in the above excerpt) is the reverse of the truth—it is not easy to see how this reference to former methods of cultivation can be anything but a genuine folk-memory. The “over-tread plough” (Welsh, *arad arsang*) means literally “plough of the instep,” or “tread-plough,” an apt description of the caschrom, and it appears that at the time that this triad was committed to writing such an implement was still used by the Irish—or the Goidels—even as it is today by the Goidelic people of the Hebrides. What was the precise improvement said to have been introduced by Elldud is not stated, but we may infer that it was the two-ox traction plough. We are not, however, bound to believe that this was not introduced into Britain till the fifth century of our era, though that may perhaps have been true of Wales, the more so as the traction plough did not evict the caschrom from the western shires of Scotland till the eighteenth century, and has not even yet done so in the remoter islands.

These facts and traditions seem to point to an instrument resembling the caschrom having been in very general use in western Europe, while its supersession by the ox-drawn plough was a gradual process, not even yet complete, which, as far as Britain is concerned, probably began in the south-east and spread slowly to the more distant parts. As to when this improvement began, there is as yet no evidence, but the foot-plough had apparently not disappeared from Somerset by the first century before Christ.

In the above-quoted triad the reference to cultivation with the mattock carries us back a step further still to an implement which, developmentally, must have preceded the caschrom, if the analogy of modern primitive tribes holds good. Most African tribes, if uninfluenced by European methods, break up the ground with an implement resembling a mattock or hoe, or with a simple digging-stick. This is undoubtedly the most primitive means, and it is from the digging-stick that the caschrom has evidently been developed. An interesting link in this chain of evidence is furnished by a Sudanese implement which is in fact a caschrom made in one curved piece, instead of with an angle.⁴⁹ The foot-peg is the same, and the method of use must be identical.

That such hoes were actually used by the neolithic people of central

⁴⁹ A specimen is to be seen in the ethnological collection at the Brighton museum.

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Europe is suggested by the frequent occurrence of 'shoe-last celts' in deposits of that period, and Pliny tells us that even in his day some mountain tribes still "ploughed" without oxen, using a sort of hoe.⁵⁰

The fundamental difference between the mattock, hoe, or digging-stick on the one hand, and the caschrom on the other, is that while the former implements break up the ground irregularly, the latter produces a definite furrow. This is an important point, as will be seen in the next section.

While in some cases, as in Brittany, the traction-plough may have originated in the adaption of the caschrom, this may not have been the case everywhere. The Bronze Age rock-carvings alluded to above, as well as various Roman ploughs figured by Meitzen,⁵¹ give the impression that the common traction-plough may have arisen from a kind of hook dragged through the ground—such a hook as can easily be made of a forked branch of a tree, of which the longer limb formed the beam to which the oxen were attached, the shorter limb the share-beam, and the stem the handle. From its shape one would judge that this type had been derived from the hoe such as is figured in Egyptian hieroglyphs, and is seen in use today in central Africa. Indeed, the development of the plough from the hoe has actually been observed in South Sweden in comparatively recent times, an intermediate form consisting of a large hoe dragged through the ground by man-power.

(5) ANCIENT CORN-PLOTS AND FIELDS

In the effort to prove that the customary acres, which characterized the open-field system prevailing in England during the middle ages, were derived from a Roman or pre-Roman source, much has been written that would not have been written, had the study of the subject been transferred to the field at the point where documentary evidence fails us. The English open-field system, with its statute acres and customary acres, has been fully described by various writers, and is well known. The English acre, which in its statute form had a length ten times its breadth, and consequently a furrow of 660 feet and a breadth of 66 feet, has been satisfactorily traced back to the early part of the Saxon period, but not further, at any rate as far as Britain is concerned (plate III and fig. 17).

⁵⁰ Pliny, *N.H.* xviii, 49.

⁵¹ Meitzen, *loc. cit.*

PLATE II

NORTH



PREHISTORIC CELTIC FIELDS, WINDOVER HILL, SUSSEX (6 INCH O.S., LXXIX, NE)
APPROXIMATE SCALE: 1 INCH TO 150 FEET

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PLATE III



TYPICAL ENGLISH ACRE-STRIPS, WINSPIR BOTTOM, NEAR WORTH MATRAVERS, PURBECK

Pl. Flight-Lieutenant Drudge, M.C., no. 10 group H.Q., Lee-on-Solent

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On the chalk hills of the south-east of England the relics of terrace cultivation, in no wise resembling the arrangement of the English open-field system, are everywhere to be found (contrast figs. 1-7 with fig. 17, and plate II with plate III). The first person to point out the utter dissimilarity of these fields to the medieval English fields was Mr Reginald Blaker, of Lewes,⁵² and he was followed not long after by Mr Herbert S. Toms of Brighton,⁵³ who has given a great deal of attention to the question. Since the war the matter has been definitely settled by air-photography, by which means Mr O. G. S. Crawford has mapped large areas of these ancient cultivations, and shown them to be the actual fields cultivated during the early Iron Age and Roman period (plates II, IV, V).⁵⁴ Working at the same time and on the ground the present writer, in conjunction with Dr Eliot Curwen, F.S.A., studied the same question on the South Downs in Sussex, and came independently to identical conclusions.⁵⁵

These ancient cultivations owe their preservation to the fact that when (by ploughing) the turf is removed from an area of ground, and the soil is disturbed, there is a tendency for the latter to travel downhill and to form an accumulation at the lower edge of the plot at the expense of that at the upper edge. Such an accumulation, even on a very moderate slope, becomes in time a very marked bank, which is called by various names, the commonest of which are 'lynchet,' 'lynch,' or 'balk.' For the sake of convenience one may speak of the accumulation of soil along the lower edge of a field as a 'positive lynchet,' and the scarp formed by the removal of soil from the upper edge of the field as a 'negative lynchet.' It will thus be readily seen that, when there is a series of fields one above the other, which were originally separated by narrow strips of unploughed turf to prevent the soil travelling down from one field to another, the intervening lynchets will each consist of a positive element superadded to a negative. This is made evident whenever sections of such lynchets are exposed by excavation (see fig. p. 274). It is necessary to realize that such terraces have not been formed intentionally, but are the result of ploughing; and, conversely, that apart from disturbance of the soil, including the removal of the turf, such lynchets cannot form. The presence, therefore, of lynchets in

⁵² *Sussex Arch. Coll.* xlv, 198-203.

⁵³ *Antiquary*, Nov. 1911, 411-17.

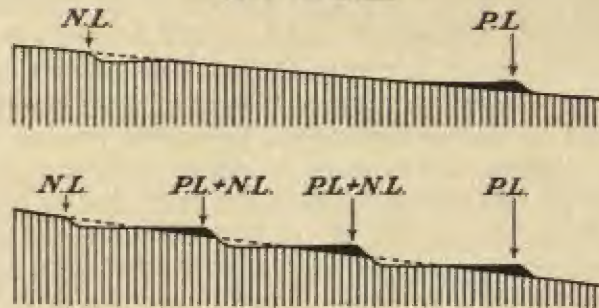
⁵⁴ *Geograph. Journ.* lxi, 342-66; *Air-Survey and Archaeology* (Ordnance Survey Professional Papers, N.S., no. 7, 1924).

⁵⁵ *Sussex Arch. Coll.* lxiv, 1-65.

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connexion with a plot of ground amounts to proof positive that the surface of such a plot has been cultivated. The importance of this point will appear later.⁵⁶

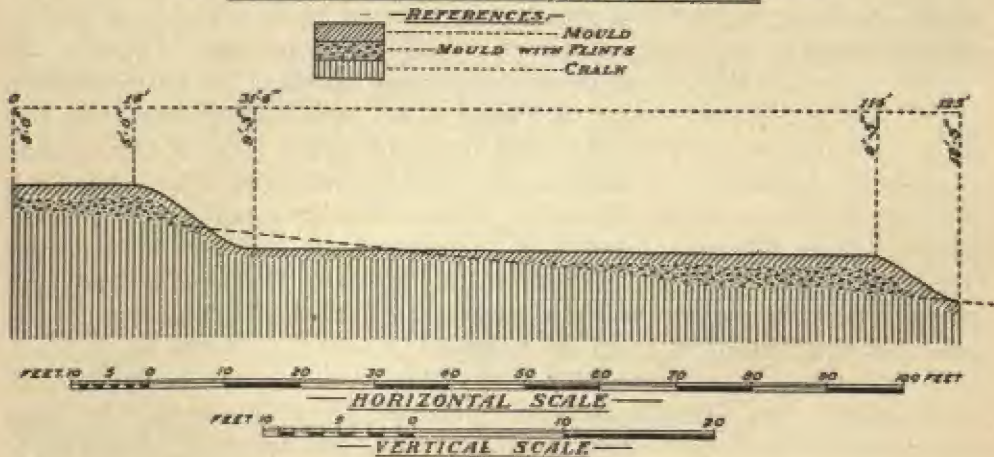
—LYNCHETS.—



—REFERENCES.—

PL.....Positive Lynchet.
NL.....Negative Lynchet.

—SECTION THROUGH LYNCHETS ON— —THUNDERSBARROW HILL—



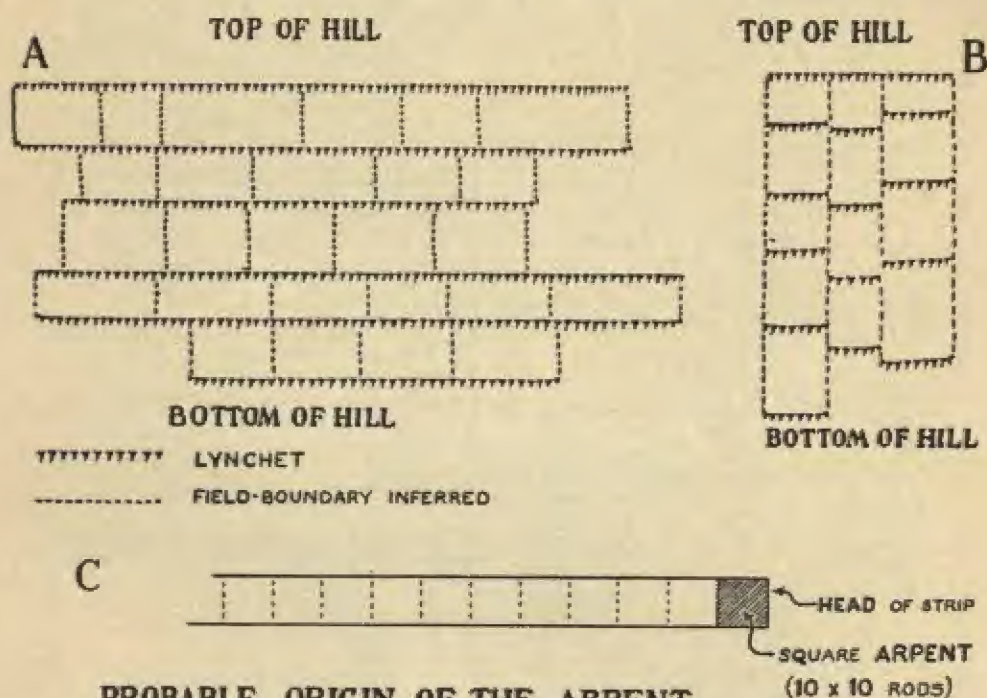
The lynchet-fields of the chalk hills of s.e. England fall into two main classes: (1) long, narrow, *co-terminous* strips, roughly corresponding to the statute English acre or half-acre (viz. 660 by 66 or 33

⁵⁶ For a discussion of the process of lynchet-formation in greater detail see the paper referred to in the last note.

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feet); these fields are medieval or fairly recent; and (2) fields which bear no resemblance to the English acre, but which are found invariably to antedate any medieval structures and sometimes also Roman remains with which they may come into relation, while they are organically connected with the sites of early Iron Age or Romano-British settlements. These fields belong to what is now called the Celtic type,

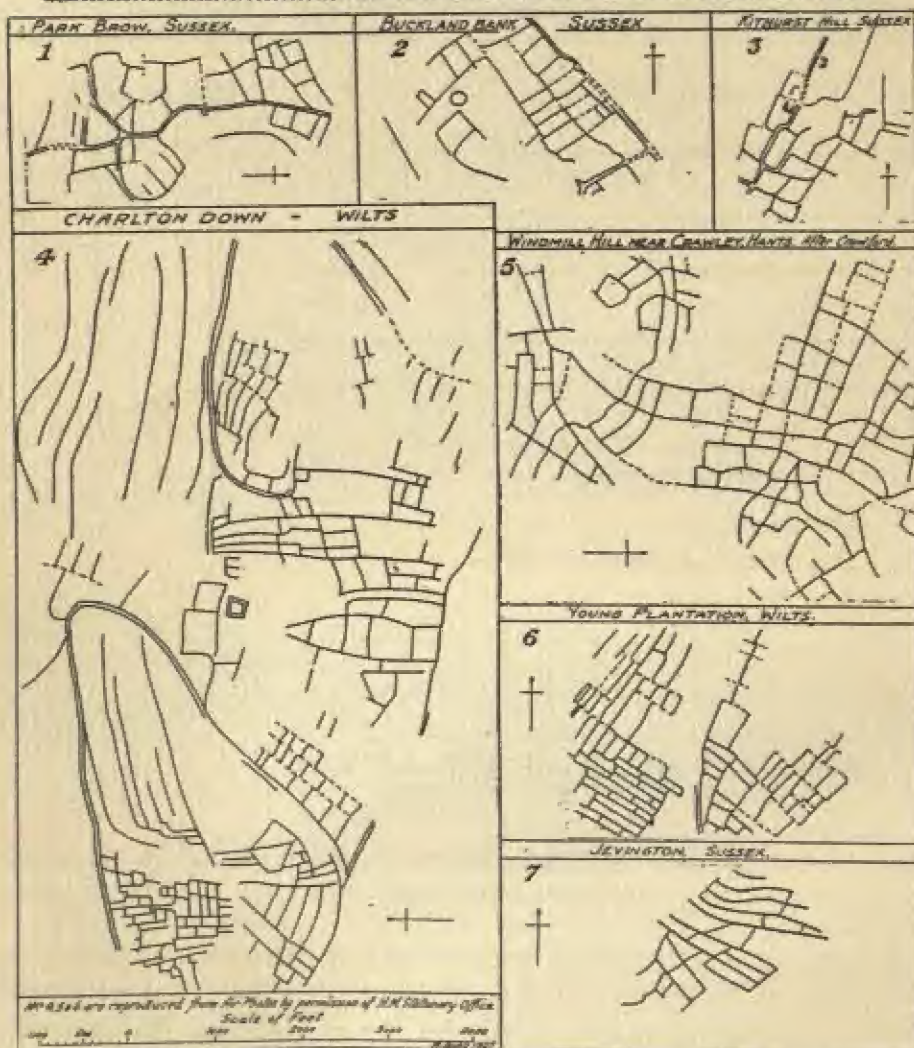
DIAGRAMS ILLUSTRATING TYPES OF CELTIC FIELDS



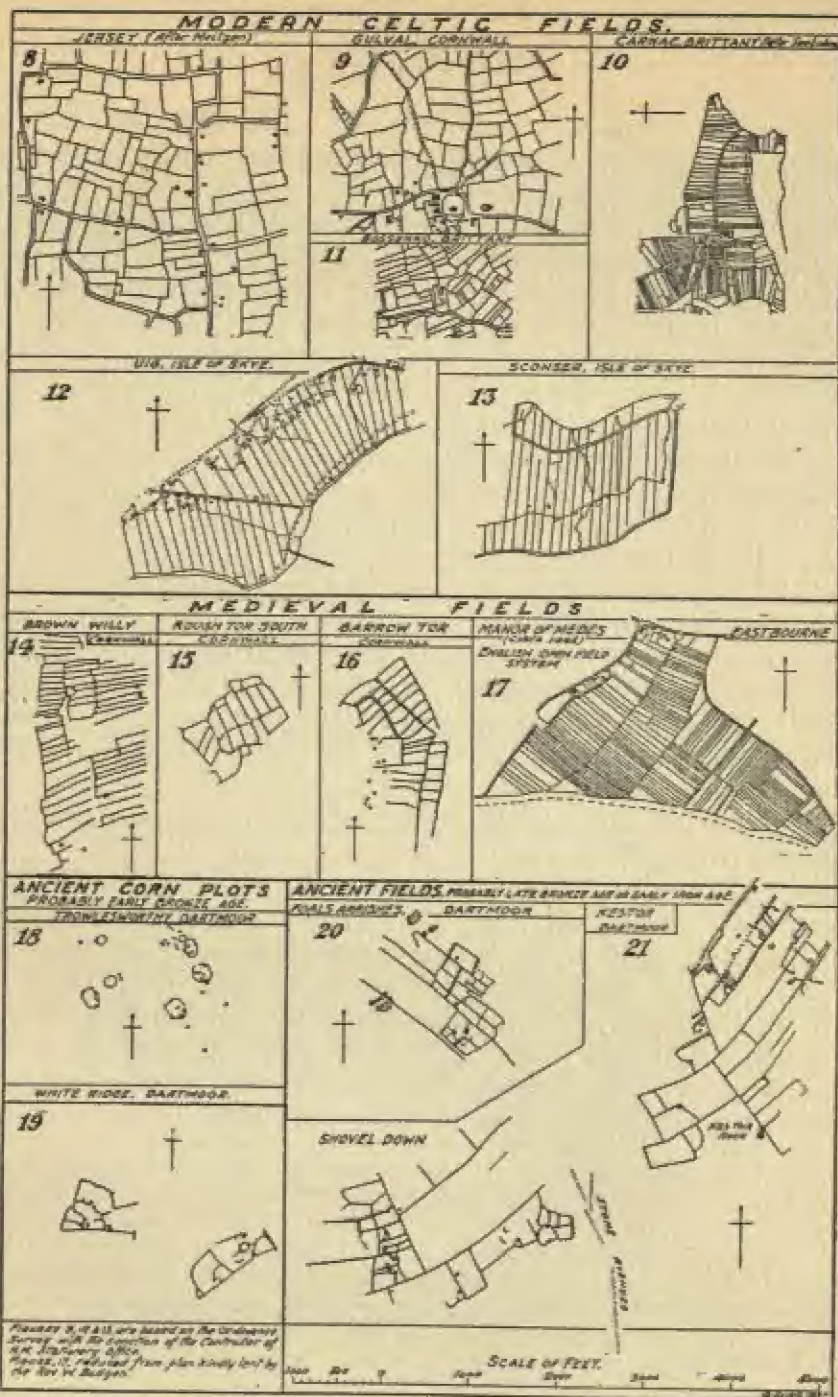
PROBABLE ORIGIN OF THE ARPENT

though in reality they do not conform to one type but to three, the differences probably not being fundamental as they are apt to merge into one another :—

(a) Long strips running parallel to the contours, of indefinite length, and of breadth varying from 100 to 300 feet, but commonly between 120 and 240 feet. They are *not coterminous* with adjacent strips, and they often show signs of having been *transversely* divided



FIGS. 1-7. PREHISTORIC CELTIC FIELDS OF SOUTH-EAST BRITAIN, WITH DIAGRAM ILLUSTRATING THE EVOLUTION OF THE PLOUGH



FIGS. 8-21. MODERN CELTIC, MEDIEVAL, AND BRONZE AGE FIELDS FOR COMPARISON AND CONTRAST

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into squarish or oblong areas, though such divisions, not being lynched (owing to their running at right angles to the contours), are, more often than not, difficult to trace (see diagram, A). An example of this type may be seen in the top left-hand corner of fig. 4.

(b) Similar long strips, but running at right angles to the contours, i.e., up and down the hill, of similar dimensions and likewise transversely divided into squarish or oblong areas. In this case the fall of the ground causes only the transverse divisions to form lyncheds, the divisions between the strips being practically invisible (diagram, B). An example of this type may be seen in the right-hand half of figs. 4 and 6.

(c) Similar squarish or oblong areas, but fitted into one another irregularly, and not in long rows as in the first two classes. This type may prove to be characteristic of the Roman period. Good examples are shown in figs. 2 and 3.

In all these three types the ultimate field is squarish or oblong, varying from 100 feet square to 300 by 200 feet, or 400 by 150 feet. Rarely is the length of any one plot more than about 400 feet, or the breadth less than 100 feet, though the area is commonly between $\frac{1}{2}$ and $1\frac{1}{2}$ acres. They are almost always rectangular and their boundaries rectilinear, except where the nature of the ground necessitates a curve or other irregularity. In figs. 1-21 are shown the outlines of various types of fields—ancient Celtic, modern Celtic,⁵⁷ and medieval English—all drawn to the same scale for comparison and contrast.

There is a further fundamental difference between this field-system and that introduced by the Saxons. The former was a hill-system, the latter a valley-system. The Britons were a hill-folk, dwelling on hill-tops, from which their fields spread down into the valleys. The Saxons, on the other hand, were a valley-folk and laid out their fields in such a way that they radiated out from their valley homes and crept up into the hills. Mr Crawford has clearly shown this difference in the distribution of village-sites in Wilts by means of two plans,⁵⁸ and

⁵⁷ Fig. 12 shows the holdings of the crofters at Uig, Isle of Skye, and reveals a type of field suggestive of type (b) of the prehistoric Celtic fields. For the following description I am indebted to the factor, Mr MacCallum (through the kindness of the Rev. D. A. Macdonald of Kilmuir):—"The holdings are laid out in long strips of, say, 400 yards, and each holder's house is generally situated at the end of his holding. Each strip is transversely divided into 4 or 5 divisions, according to the rotation shifts carried on by each holder, e.g., a holder carrying out a four-shift rotation has his strip of land divided into 4 plots—(1) corn; (2) potatoes and turnips; (3) young grass, and (4) second year's grass."

⁵⁸ *Air-Survey and Archaeology*, 8, 9.

PLATE IV

NORTH



PREHISTORIC CELTIC FIELDS, FORE DOWN, NR. EASTBOURNE
(6 INCH. O.S., LXXIX, NE) APPROXIMATE SCALE: 1 INCH TO 180 FEET

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the same difference is even more marked in Sussex where the Saxons left the Downs almost entirely uninhabited after exterminating the British population at the siege of Anderida, and themselves settled in the forest of the Weald, on the coastal plain, and in some of the larger valleys of the Downs. The writer is unacquainted with a single British settlement in Sussex situated in the bottom of a valley,⁵⁹ while English manors situated on hills are the exception rather than the rule.

These distinctions are fundamental, and of the highest importance in archaeology, for once the characteristics of the Celtic field-system are realized they provide a useful date-standard by which to judge the roads and earthworks with which their lynchets may happen to come into relationship. Thus lynchets of this system are sometimes found to be older than hill-top camps, as is the case at Cissbury,⁶⁰ and sometimes contemporary, as at Woolbury and Lidbury.⁶¹ Lynchets, too, which ante-date a small Romano-British barrow near Brighton are contemporary with a very fine stretch of long-disused road.⁶²

In air-photographs the outlines of Celtic fields can be traced even where the lynchets have been destroyed by modern ploughing. This is because the chalk of which the lynchets were largely composed forms whitish lines which contrast with the darker soil of the modern field. Very complex pictures are sometimes revealed by this method—Celtic fields overlaid by English acre-strips, and these in turn, perhaps, by more recent ploughing.

The outcome of this is a very practical illustration of the completeness of the hiatus caused by the Saxon Conquest, at any rate in the south-east of Britain, and it emphasizes the fact that the long English strip-acre, whatever its origin, was not native, but was introduced by the Saxons.

In his monumental work on customary acres Seeböhm has shown that the 1 by 10 acre-strips, and their close relatives the 1 by 5 strips, seem to have originated in the corn-lands at the mouths of the Po and of the Danube, and to have stretched thence across Switzerland and northern France to Britain, leaving on either side of them areas where square or oblong acres still hold the field. In contrast to these Mr J. Pelham Maitland has very kindly furnished the writer with particulars

⁵⁹ Late Celtic towns are sometimes found in valleys by a river, e.g., London, Canterbury and Winchester.

⁶⁰ *Sussex Arch. Coll.* lxvii, 74-76.

⁶¹ Information of Mr Crawford.

⁶² *Brighton and Hove Archaeologist*, no. 3 (1926), 35.

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of the lynchet-fields of the Somme district in Picardy. This system seems to belong to the type (a) of the Celtic system described above ; it tends to centre round the great hill-forts (*oppida*), and some of the lynchets are pre-Roman, for at Bouvincourt in the canton of Gamaches, is a series of lynchets (French, *rideaux*) which is cut through by the Gallo-Roman road running between Amiens and Eu.

What then is the origin of these strip-acres of which the English system affords an example, and which seem to have come to us from the corn-growing regions of south Europe ?

The shape and size of any field is governed more than anything else by the type of plough used in cultivating it. We have already seen how the ordinary Roman and British ploughshare merely scratched a shallow groove in the soil—a most ineffective way of aerating it. In view of this Pliny and Vergil⁶³ tell us that every field ought to be ploughed both longitudinally and transversely, the better to loosen and break up the soil. In order to make such cross-ploughing possible the Roman 'acre' (*jugerum*) was broad in proportion to its length, and had a furrow only 120 feet long, which was considered long enough for two oxen at a single draught. Pliny, however, tells us that there *was* a type of ploughshare which had a broad blade which undercut the sods and turned them over as our modern ploughs do.⁶⁴ This kind is mentioned in connexion with Rhaetia, and may well have been a south German invention. The effect of such a plough would be to do away with the need for cross-ploughing, and so a lengthening of the furrow at the expense of the width of the acre was made possible, thus saving time lost in unnecessary turning of the plough.⁶⁵ To make a longer furrow possible a larger team of oxen is necessary so that they may not be exhausted, and in this way we see a probable origin of the long strip-acre and the eight-ox plough-team which forms such a contrast to the two-ox team of the Greeks, Romans and Celts.⁶⁶

In the process of time this type of acre was carried across northern France and introduced by the Saxons into Britain, where it seems to have supplanted the Celtic system not only in the parts conquered by

⁶³ Pliny, *N.H.* xviii, 49, 4 ; Vergil, *Georg.* i, 97, 98.

⁶⁴ Pliny, *N.H.* xviii, 48.

⁶⁵ See Meitzen, *Siedelung und Agrarwesen*, i, 272-84.

⁶⁶ Meitzen (*loc. cit.*) considers that the word 'plough' with its cognates, which are only found in the Teutonic languages, strictly refers only to this type of implement, which Pliny tells us was called *plaustratum*, a name whose non-latinity is sufficiently indicated by the efforts of copyists to explain it.

PLATE V

NORTH



PREHISTORIC CELTIC FIELDS, JEVINGTON, NR. EASTBOURNE
(6 INCH O.S., LXXIX, NE), APPROXIMATE SCALE : 1 INCH TO 210 FEET

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the Saxons, but the eight-ox team and the long acre seem to have found their way into Wales, Scotland and Ireland, and to have formed an integral part of the tribal systems there, with the communal ploughing that was practised.⁶⁷

So much for the Celtic and Saxon systems. What were the fields of the Bronze Age like? There is very little evidence to show that any of the lynchets of the chalk hills go back to this period. Mr Toms, however, has shown that there are some lynchets antedating the rectangular earthwork enclosure known as South Lodge camp (Cranborne Chase), which was excavated by General Pitt Rivers and attributed to the late Bronze Age. He has also pointed out reasons for believing that some very reduced lynchets antedated the late Bronze Age work known as the Angle Ditch.⁶⁸ But for the most part the cultivation of the chalk hills in early Iron Age times was so intensive that traces of earlier cultivation would be little likely to survive.

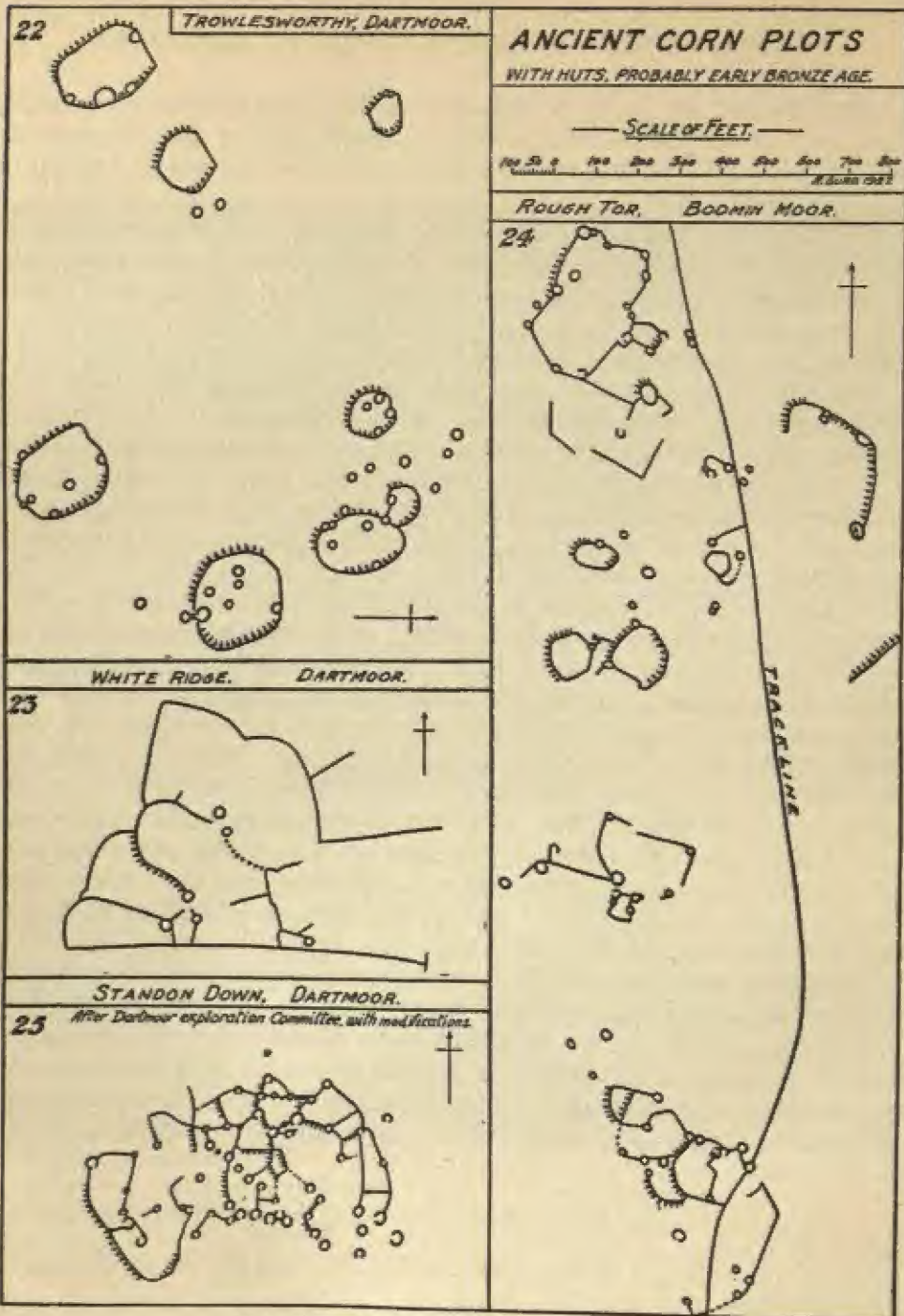
We are bound, therefore, to seek elsewhere for traces of what we want, and we fortunately find in Dartmoor a very wide field of research. Dotted all over the moor are little groups of hut-circles forming villages and hamlets of very varying plan. Some years ago the Dartmoor exploration committee of the Devonshire Association did noble service in excavating several of these sites, undaunted by the very disappointing paucity of results. Very little was found in most of the huts, but such as was found seemed to point to their having been occupied from the beginning of the Bronze Age, and little, if anything, could be assigned to the early Iron Age. None of the huts show evidence of tin-working and many, while containing charcoal, cooking-stones, and worked flints, yielded no pottery at all. They are associated with round barrows, two of which have been found to contain beakers.⁶⁹

Some of these groups of hut-circles are surrounded by roughly circular enclosing walls, others lie unenclosed on the open moor, while others again have numerous small walls enclosing irregular spaces between the huts. A fourth kind is integrally associated with more or less rectangular enclosures arranged in rows. A close examination shows that a slight, but very definite, degree of lynchetting is to be found in some, but not all, of these enclosures. This, as was emphasized

⁶⁷ When oxen are used for ploughing in Sussex at the present day, six beasts are yoked in three pairs.

⁶⁸ *Proc. Dorset N.H. and Antiq. Field Club*, xlv, 89. See also Pitt Rivers, *Excavations in Cranborne Chase*, iv, 3-17; 102-13.

⁶⁹ *V.C.H. Devon*, i, 358-60.



FIGS. 22-25. EARLY BRONZE AGE CORN-PLOTS

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above, is a certain sign of the ground having been disturbed by agriculture. By far the most elaborate and finished set of such rectangular fields is to be seen close to Kes Tor (or Castor) rock, Batworthy, near Chagford (fig. 21).⁷⁰ Here the lynchets are quite marked, and the hut-circles are the finest examples the writer has seen on the moor. These huts, which are geometrically circular, having a diameter of 30 to 40 feet and double walls 5 to 6 feet thick, which still stand their full height of about 4 feet, have not been excavated. When this is done they may prove to be later than most of the others.

Similar rectangular and strongly lynchetted fields associated with well-built hut-circles are to be seen at Foale's Arrishes, near Rippon Tor (fig. 20).⁷¹ The walls of some of these plots have been restored and improved in later times, probably as paddocks for cattle. The hut-circles have been excavated and yielded only a few shards of coarse Bronze Age pottery, a few worked flints, and three rubbing-stones of red grit.⁷²

More usual are slightly lynchetted plots, very small and irregular in shape, and evidently earlier in type than those we have been considering. The amount of corn that could have been grown on them must have been very small, but that corn was actually grown there is proved by the finding of parts of saddle-querns in two such settlements, one on White (or Whiten) Ridge, near Postbridge (figs. 19 and 23), and the other on Standon Down, by the river Tavy (fig. 25).⁷³ The extraordinarily small size of the plots in the latter instance recalls the description given of Highland corn-plots cultivated by the *caschrom* in 1793 :—"The inhabitants make a shift to rear some corn . . . great labour in clearing their little plots (many of which are no larger than the floor of an ordinary room), by digging, turning out great stones, and grubbing up bushes and underwood."⁷⁴

Another type of corn-plot is extremely interesting, because it probably represents the very beginnings of agriculture in this country. A good example exists about half-a-mile south-east of Trowlesworthy Warren House in the parish of Shaugh Prior,⁷⁵ where are eight oval

⁷⁰ 6 in. O.S., Devon, lxxxix, NE and SE.

⁷¹ 6 in. O.S., Devon, cviii, NW.

⁷² *Trans. Devon Assoc.* xxix, 151-6; *V.C.H. Devon*, i, 354.

⁷³ *T.D.A.*, xxviii, 183; xxxiv, 160-5; *V.C.H. Devon*, i, 355.

⁷⁴ *Statistical Accounts of Scotland*, vi, 287-8; the reference is to the parish of Edderachylis, Sutherlandshire.

⁷⁵ 6 in. O.S. Devon, cxii, SE.

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enclosures surrounded by the remains of stone walls, each containing three or four hut-circles, with a few other huts scattered about outside (figs. 18 and 22). These enclosures, of which the greater diameter varies from 100 to 250 feet, are each markedly lynched, but the amount of levelling so produced is negligible, thus putting out of court any suggestion that they had been intentionally levelled.

A similar lynched enclosure exists on the bank of the river Plym, near Legis Tor, half a mile to the north, associated with other more complicated enclosures less definitely lynched. Some of the hut-circles in this neighbourhood were excavated, yielding round-bottomed vessels and horizontal lugs that resemble very closely the neolithic pottery found by Mr Alexander Keiller at Windmill Hill, Avebury.⁷⁴ Unfortunately there was nothing in the report to indicate whether all the enclosures here were co-eval, or which of the hut-circles yielded the pottery.

It is greatly to be desired that some of the huts in the Trowlesworthy enclosures should be excavated. These eight enclosures evidently represent as many separate homesteads, each consisting of three or four huts, and in all probability dating from the beginning of the Bronze Age, if not from the end of the neolithic period. Our study of the origin of the plough in the last section would lead us to expect that at such an early period a mattock, hoe, or digging-stick would be the only tool used for breaking up the ground. With such an implement the shape of the plot cultivated would be immaterial since no furrow was made. The scarcity of grain would be likely to preclude extensive cultivation, and where so natural a place for it to be carried on as round and between the huts that go to form the dwelling? Equally naturally will the plot be ringed round with a dry stone wall, partly to protect the crop from the cattle, and partly as a dump for stones collected from the surface. A few large boulders lying about will inconvenience the free progress of the digging-stick no more than will the huts, awkwardly placed, as we should think them, right in the middle of the corn. This type of plot, therefore, corresponds with what we should call a garden rather than a field.

As time goes on and communities increase we see these huts with their corn-plots huddled together in close contiguity, and the latter necessarily take on irregular shapes to fit in with their neighbours.

⁷⁴ *Trans. Devon Assoc.* xxviii, 174-99; *V.C.H. Devon*, i, 353. The writer has failed to trace the present whereabouts of this important pottery from Legis Tor.

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It is noticeable that anything approaching a straight line in the boundaries of the plots seems to have been, as far as possible, avoided. In those days the curved line of beauty was evidently esteemed more highly than the straight line of duty.

When, however, the irresponsible mattock or digging-stick gives place to the caschrom, or foot-plough, we have at last an instrument that makes a furrow. For satisfactory furrows a straight-sided plot is a desideratum, and in this way the rectangular field is evolved, such as we have seen at the Kes Tor and Foale's Arrishes. With the introduction of the two-ox plough more work can be done in a day, and consequently the furrow is made longer and the field larger. We have already seen how the introduction of the eight-ox plough lengthened the furrows still more, and the same process is at work to-day on the unenclosed areas of the chalk Downs, where motor ploughs have made possible enormous fields with immensely long furrows.⁷⁷

On Bodmin Moor, in the neighbourhood of Brown Willy, Rough Tor and Garrow Tor, two contrasting types of ancient fields may be seen to advantage, the one, small irregular plots connected with hut-circles (fig. 24), and the other, rectangular 'acres,' probably medieval, closely resembling the Breton *arpent*,⁷⁸ and still showing longitudinal ridges (*seliones*) averaging $7\frac{1}{2}$ feet wide (figs. 14-16). Both types show good lynchets.

Seeing that our earliest agriculturists seem to have been hill-folk, the probability is that the earliest "fields" were enclosed from open pasture-land, and not from forest, as has generally been assumed. This view is supported by the fact that the English word 'acre' and the Latin *ager*, with their cognates, are derived from a root meaning wild open country or pasture (Sans. *ajra*).⁷⁹

METHODS OF CULTIVATION

We have so far discussed the shape, size and general outlay of the ancient fields in relation to methods of ploughing. It remains to be seen whether there is any evidence as to the methods of cultivation adopted.

The inhabitants of the hut-circles were in all probability nomad

⁷⁷ A motor-tractor can plough 5 acres in the day.—*Journ. Bd. Agriculture*, xxiii, 683.

⁷⁸ F. Seebohm, *Customary Acres and their Historical Importance*, 130.

⁷⁹ Schrader and Jevons, *op. cit.* 283.

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or semi-nomad herdsmen who never inhabited one site for very long. This is borne out by the scarcity of relics found in the huts, and also by the slight degree of lynchetting the fields have undergone. Like the patriarch Isaac, himself a nomad herdsman who "sowed in that land, and found in the same year an hundredfold, and . . . departed thence,"⁸⁰ these nomads, who were probably his contemporaries, may have inhabited a village for from one to five years, until the corn plots were exhausted, and then moved elsewhere. Such methods of agriculture demand, and provide, no manurial treatment to maintain the fertility of the soil.

Unfortunately manuring is not a process which leaves any permanent archaeological evidence behind it. When, however, one sees, as one does at Kes Tor and Foale's Arrishes, rectangular fields, sometimes with considerable lynchets, and no visible evidence of any two-field or three-field rotation of crops, one is justified in assuming that some sort of manurial treatment must have been adopted, even if it was only the folding of cattle on the fields in winter.⁸¹

When we turn to the early Iron Age and the Celtic field-system as we have it revealed on the chalk hills, we find definite evidence of long-continued cultivation in the enormous lynchets which are frequently as much as 8 feet high, and occasionally as high as 18 feet. As yet we have no sufficiently complete plan of the fields of any one settlement to say whether they appear to have allowed for a two- or three-field rotation, as was the rule in the English open-field system. Manuring must have been thoroughly done, for we know from several classical writers that great quantities of corn were grown in Britain at any rate between 325 B.C. and 360 A.D.⁸² Pliny also describes the way in which the Britons marled their fields with chalk obtained from very deep pits⁸³—a process which tends to overcome the acidity of the surface soil, and which, according to experiments carried out by Sir John Russell, D.Sc., is definitely beneficial to some crops, such as barley.⁸⁴ Whether potash was applied in the form of wood-ash we have no knowledge; but that such a process was an ancient one is suggested

⁸⁰ Gen. xxvi, 12, 17.

⁸¹ The cereals found in the Swiss lake-dwellings were all spring-sown.—Keller, *op. cit.* 519.

⁸² See *Sussex Arch. Coll.* lxiv, 60-2.

⁸³ Pliny, *N.H.* xvii, 4.

⁸⁴ *Journ. Board of Agriculture* (1916), xxiii, 625-32.

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by a passage in the *Mabinogion*,⁸⁵ to which Sir John Russell has kindly drawn our attention, where Kilhwch was commanded to cut down trees, burn the branches, and spread the ashes on the fields as manure.

CONCLUSIONS

We may sum up the evidence regarding prehistoric agriculture in this country as follows :—

1. Traces of agriculture first appear at the end of the neolithic period (about 2000–1800 B.C.).
2. During the early Bronze Age corn-plots were small and irregular, were probably tilled with a digging-stick or mattock without furrows, were reaped with serrated flint flakes set in wooden sickles, and were abandoned as soon as they became exhausted. Corn was ground on saddle-querns.
3. During the latter part of the Bronze Age the fields probably came to be tilled with some sort of foot-plough making a furrow, and therefore assumed a rectangular shape. They were reaped with bronze sickles, at first flat, and later socketed, and corn continued to be ground in saddle-querns. The two-ox plough was possibly introduced latterly.
4. The early Iron Age probably saw the spread of the use of the two-ox plough, bringing with it rather larger rectangular fields. Corn was reaped with iron sickles. This period saw the gradual introduction of rotary querns.
5. The Roman period saw no marked change in agricultural conditions.
6. The Saxon conquest caused a complete break of continuity, introducing eight-ox ploughs and long, narrow strip-fields, with valley-settlements and the neglect or destruction of the preceding system, at any rate in the south-east of Britain.

The study of prehistoric field-systems is yet in its infancy, and we need to know much more before we can give any answers to the problems arising in connexion with the characteristic features of the

⁸⁵ *Mabinogion*, Tale of Kilhwch and Olwen. Cf. also Pliny, *N.H.* xvii, 5.

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Celtic field-systems as they appear in Wales, Scotland, and Ireland in historic times. More surveys, if possible of complete settlements, and more excavation of the associated dwellings are needed before we can form a conception of the growth of ideas relating to communal tillage, rotation of ownership, and private ownership in land.

In conclusion I must express my indebtedness to Mr O. G. S. Crawford for help in many ways in the preparation of this paper, particularly in the compilation of the bibliography and in providing the excellent air-photographs.

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The Development and Antiquity of the Scottish Brochs

by ALEXANDER O. CURLE

THE Scottish area is particularly rich in prehistoric remains, in some measure due to the fact that being a hilly and mountainous country large tracts of the surface have never been torn by the plough, nor suffered from the iconoclastic hand of the improver. Save for the effects of drainage, and some change in the character of vegetation arising from alteration of climate, much of the moorland country must have changed little in aspect since a remote past.

Among the various prehistoric structures in Scotland none is more remarkable than the broch. It does not occur out of Scotland, and neither its development nor period of occupation are generally understood.

The typical broch is a circular structure, a species of tower, built entirely of dry-stone masonry without the use of any cementing material, formed with a wall measuring at base, in some cases, as much as 15 feet in thickness, in others considerably less, enclosing a central courtyard with a diameter of 30 feet or thereby, and except for perhaps an encircling corridor, probably open to the sky. The wall had a considerable batter at its base on the outer surface, and rose upwards to an estimated height in many cases of 50 or 60 feet. No broch at the present day remains intact to anything approaching its original elevation except perhaps the broch of Mousa, situated on a small island off the coast of Shetland, and it, though a small one, is still 45 feet high. Save the doorway on the ground level no opening pierced the surface of the outer wall, and the broch rose majestically from the ground, a very cylinder of stone, an impregnable fortress. (Plate 1).

The doorway built up on each side to a height of 5 feet or thereby, having the jambs rising upwards with an inward inclination and surmounted by a lintel, the latter, at times a large triangular slab of stone, gave access to the interior court by a passage directly through the wall. Some 6 feet or thereby inwards from the outside, checks formed

PLATE I

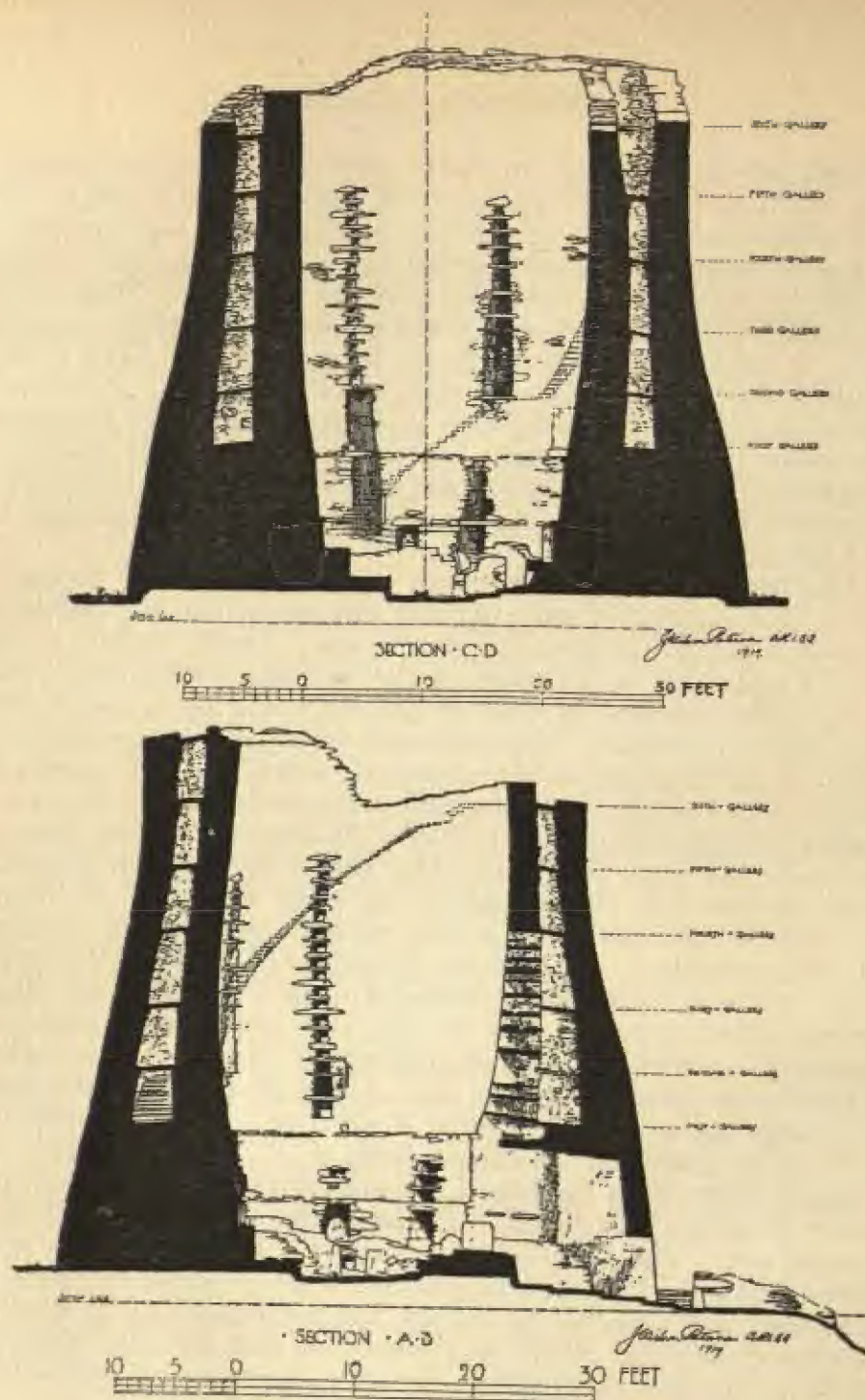


BROCH OF MOUSA
Ph. G. W. Wilson, Aberdeen

SCOTTISH BROCHS

on either side of the passage by the insertion edgeways of upright slabs, or by the expansion of the passage itself, indicated the position of the door, while a hole passing deeply into the wall on one side formed the socket for a massive bar which kept the door secure when shut. Nearer the interior there was occasionally a second doorway. These doors, most probably fashioned of stone, revolved on stone pivots, the socket stones of which are occasionally to be seen in the ruins. Very frequently the passage was roofed with slabs laid with intervals between them in such a way that an intruder into the passage might be assailed from above. Behind the outer door-checks, if there were two doors, access was given through a short passage to a chamber fashioned in the thickness of the wall measuring approximately 7 to 8 feet in length by 5 to 6 feet in breadth.

Opening off the courtyard there were usually other chambers while a door situated about a quarter way round the circumference of the wall to the left gave access to a short passage leading to the foot of a stone stair in the centre of the wall which rose to the right. To the left opposite the foot of the stair a long chamber was frequently constructed. The stair as it circled upwards encountered a series of galleries one directly above the other, slabs of stone tied into the outer and inner walls forming respectively the roof of one and the floor of the other (figs. 1 and 2). At intervals vertical rows of window-like openings looking into the interior crossed these galleries. As the exterior face of the wall of the broch rose with an inward slope and as the interior face was vertical, the breadth of these galleries consequently diminished upwards. This is clearly shown in the sectional view of the Broch of Dun Telve in Glen Beag, Inverness-shire (plate II), one of the few examples in which a considerable portion of the superstructure remains. Here, while the two lower galleries are of such width as to have permitted their occupancy by human beings if need be, the upper galleries on the other hand are so narrow, and so rough in structure, as to suggest some other purpose than inhabitation for this typical and peculiar feature of the broch. The most plausible explanation is a structural one. That by substituting a series of superimposed galleries for solid building a great reduction in the amount of labour and material was secured, and also that by utilizing the horizontal flags as working platforms during the course of construction the need for elaborate scaffolding was done away with. Similarly the window-like openings reduced the pressure on the lintels of doorways giving access to



FIGS. 1 AND 2. SECTIONAL ELEVATIONS OF THE BROCH OF MOUSA

SCOTTISH BROCHS

the stair or chamber beneath, and afforded a view of the interior valuable for purposes of defence in the event of assailants having gained the courtyard. One other feature of these remarkable structures calls for notice. Almost invariably at a height of some 6 feet above floor level a scarcement, or ledge, has been formed on the inner face of the wall to a breadth of some 12 inches. This ledge has been produced either by a slight restriction of the thickness of the wall or by the insertion of a line of projecting stones of light weight. The purpose of such a ledge has long been a puzzle to archaeologists, but the excavation of the broch of Dun Troddan in Glen Beag, Inverness-shire, indicates clearly in that instance the use which it served, which in all probability was general. In this case the interior face of the scarcement is formed at a height of 6 feet by an intake of the wall above. In the floor of the interior slightly to the north of the actual centre lay a well-formed rectangular hearth, and encircling it with one exception at a distance of from 6 to 7 feet out from the wall, was a series of post holes eleven in number measuring about 1 foot 9 inches in depth and 12 to 14 inches in diameter. The distances between the post holes was not constant as may be seen by reference to the plan (fig.4) where also will be observed towards the entrance a marked irregularity in their positions. From the situations of these post holes at this point it is evident that the arrangement was controlled by some special circumstances. That the holes were intended for posts to support a roof the other end of which rested on the scarcement, seems obvious, thus forming a covered corridor, or gallery, around the court, of which the central area containing the hearth was open to the sky. If we assume that the corridor was closed at either end at the entrance, and also between the posts, and was not a mere colonnade, then it is probable that access to the interior was gained by a gate or door opening between the post holes nos. 11 and 1 of the plan. It is in this respect also worthy of note that the hearth is placed eccentrically and so as to be parallel to such a supposed line of entrance, and in such a position as to leave a wider space between it and the post holes on that side than on the north. As suggested above, the ends of the corridor were probably closed on either side of the entrance, in which case the access into the corridor itself was possibly by a door between the posts nos. 2 and 3 of the plan. To those familiar with the plans of the wags or galleried dwellings of Caithness, and the somewhat analogous structures of North Uist, in which such a closed-in corridor was formed around a central space, the interior arrangement suggested for this broch will be easily understood. The addition of

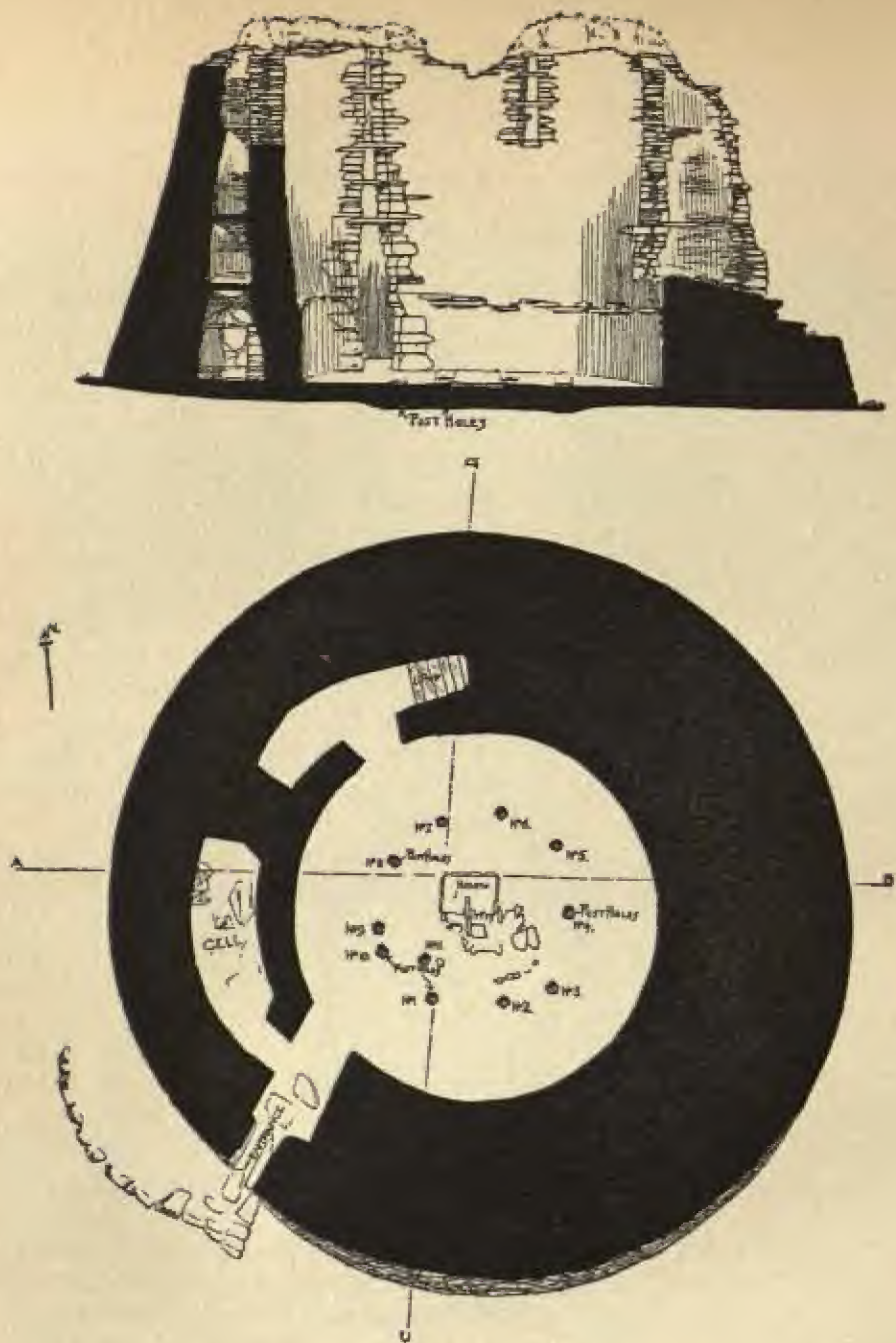


FIG. 3. SECTIONAL ELEVATION OF THE BROCH OF DUN TRODDAN SHOWING THE GALLERIES AND VERTICAL OPENINGS

FIG. 4. GROUND PLAN SHOWING THE POSITIONS OF THE POST-HOLES

SCOTTISH BROCHS

such a corridor also explains the presence of ambries occurring in the interior wall faces of certain brochs.

From time to time an analogy has been drawn between the brochs of Scotland and certain archaic structures in Sardinia known as Nuraghi for which, however, there is no justification other than that both classes of buildings are circular on plan and fashioned in dry stone masonry. There the analogy appears to end, for while the broch was a dwelling with an interior courtyard, the Nuraghi was a sepulchral structure built solid with superimposed chambers in the interior. An analogy might as well be drawn between the brochs and the round towers of Ireland with as little justification.

To seek the origin of brochs it does not seem necessary to go to Sardinia, nor to search for a link in their development throughout the intervening countries. The broch it may be maintained was of local development, but before considering that point it may be well to look at its distribution. The survey of the Ancient and Historical Monuments Commission (Scotland) is adding largely to the record of prehistoric structures throughout the country, and in the counties in the North and West the list of brochs has been considerably extended. Thus in Sutherland it is reckoned that there are remains and sites of eighty, while in the neighbouring county of Caithness the total is one hundred and forty-five. Remains of considerable numbers are to be found also in Orkney and Shetland, and in the counties of Ross and Cromartie, and Inverness. In the last mentioned two counties however the occurrences are chiefly in the islands. In contrast, Perthshire furnishes two examples, Forfarshire two, while Midlothian, Selkirk, and Berwick one each. In the county of Wigtown on the other hand there are probably the ruins of three, but excavation is necessary to establish the type. It is thus evident that the North and West of Scotland were the regions where the broch flourished, its occurrence in the central and southern districts being probably the result of some southward penetration of the northern tribes and that of a temporary nature. Of southern brochs that of Edinshall in Berwickshire, though reduced almost to ground level, has been one of the largest of its class, with a diameter over all at ground level of some 94 feet, and in its main features shows the type fully developed. Before this southward penetration occurred the broch had attained its full development somewhere in the north or west, with central courtyard, stair, superimposed galleries and chambers in the thickness of the wall.

Now all these characteristics are to be found in other structures of a

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defensive nature in the West of Scotland, and the additional features which really distinguished the broch proper are the invariable circular plan and the lofty elevation. In the West of Scotland, especially in the Isles, certain small forts are to be met with which have been appropriately termed 'galleried duns.' For the most part they occupy rocky promontories taking their form from the contour of the summit, and they are not therefore necessarily circular on plan. They are distinguished from the ordinary stone fort by the long narrow galleries within the thickness of the wall, and they have also low narrow doorways, supplied with door checks and barholes, as have also the brochs. In several instances the defensive character of the site occupied being of such a nature as to render unnecessary the complete encirclement of the position, a massive wall has been erected only on a limited front. The ruined condition of these duns prevents any actual estimate being made of their original height, but in respect that some of them, such as Dun Trugaig in Inverness-shire, contain superimposed galleries, the elevation of the galleried portion may have been considerable.

Another type of structure, examples of which occur only in the west, discloses features which it also has in common with the broch. This is a small type of fort to which the name of semi-broch was given by the late Mr Erskine Beveridge, who was the first to direct attention to it. The analogous features which these semi-brochs present are, a circular plan, with courtyard approximating in diameter to that of a broch, and a gallery in the thickness of the wall. But as the gallery seems to have been confined to the ground level the wall probably did not attain to any considerable height.

The small stone-built fort or dun, with a gallery in the thickness of the wall, finds its analogy among the stone cahairs of Ireland, where similarly constructed galleries are of frequent occurrence.

The common features of these defensive works indicate the lines of development, and the probable origin of the broch; though one may not be justified in claiming without further evidence—which excavation alone can furnish—that either the galleried dun, or the semi-broch, as their remains exist, are precursors of the broch rather than contemporary structures of a modified nature combining features derived from a common origin.*

* The question of the development of the broch has been considered in fuller detail in the Report and Inventory of the Royal Commission on Ancient Monuments, Scotland, dealing with the Outer Hebrides, Skye and the small isles, shortly to be issued.

PLATE II



1. DISTANT VIEW OF THE BROCH OF MOUSA



2. VIEW OF THE INTERIOR OF THE BROCH OF DUN TELVE,
SHOWING THE VERTICAL OPENINGS IN THE FACE OF THE WALL

facing p. 296

SCOTTISH BROCHS

A number of brochs have been cleared out ; a few have been scientifically excavated, and there are still numerous examples awaiting the attention of the skilled excavator.

As to the period of the construction and occupation of the brochs, the relics that have been recovered from them point to one definite conclusion. The occupants belonged to the Iron Age period of culture, for no broch has yet yielded relics characteristic of the Age of Bronze. On the strength of certain stained pebbles resembling those from Mas-d'Azil in the Pyrenees, and dating from Azilian times, having been found in two of the Caithness brochs a more remote origin has been claimed for them. But the brochs in which these objects were found were not more primitive in plan than others, in fact, one of them with two doorways and two staircases seemed to have been more developed than the type. The associated relics, including a piece of Roman Samian ware, querns, both of the saddle and rotary types, with a portion of an armlet of shale, etc., afforded no evidence of a pre-Roman date.

Such positive evidence of the date of occupation as has hitherto been produced, conclusively establishes the main period of occupancy as during the Roman invasion of Scotland. The most significant relics are the fragments of Roman pottery, and especially of Samian bowls, found in brochs as far apart as Okstrow in the Orkney Islands, and Torwoodlee in Selkirkshire. From the former came several pieces of a coarse undecorated bowl, probably of German manufacture, while from the latter there were recovered fragments of undecorated Samian ware as well as other Roman relics, including a coin of Vespasian, and fragments of glass bottles, cooking pots, mortaria, and amphorae. From four of the brochs in Caithness came pieces of decorated Samian ware, the Keiss broch yielding up two portions of a bowl on one of which is portrayed an undraped figure of Venus. The general character of this ware indicated a second century date for its manufacture, and we may safely assume that objects so fragile as pottery bowls found their way to the brochs in no later century than that in which they were fashioned and brought to Scotland. How long previous to the second century the brochs were in occupation it is still impossible to say, but probably for several hundred years. The excavation of the few brochs in the south of Scotland has not revealed a long period of occupation for them. The broch of Torwoodlee in Selkirkshire produced chiefly Roman relics of the 2nd century ; the Berwickshire broch of Edinshall yielded a few native relics which might well be of the same period, and the broch of

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Bow in Midlothian was notable for the sherds of coarse Roman pottery which it contained.

In the north on the other hand there is ample evidence of the use of the brochs over a long period of time, both from the numerous examples and the quantities of relics in the shape of querns and fragments of pottery found within them. The 2nd century occupation of these southern brochs is clearly established by the relics, and by that time the broch builders, as these examples show, were quite familiar with the broch in its fully developed form. It is a fair presumption therefore that before the southward penetration of this structural idea or, possibly of a section of the people who habitually made use of it, the broch had passed through years, perhaps centuries, of development and had gradually spread over the northern and western regions of Scotland.

The broch in the south seems to have been an exotic ; it came late and passed away soon. In the west and north it was a native development in full use during the second century and, possibly, for centuries after, but we have still to recover from a broch wheel-made native pottery which may indicate an occupancy during the eight or ninth century, or of Viking relics referable to the same period. Two Viking brooches it is true were found on the top of the broch of Castlehaven near Thurso, but the fact of their discovery in such a site merely showed that long before the date of their deposit this broch had fallen into ruins, and over it had accumulated such a mass of soil as to render it a suitable place to receive a Viking grave in the 10th or 11th century.

I am indebted to the Society of Antiquaries of Scotland for the use of the various blocks illustrating this paper.

Prehistoric Galilee

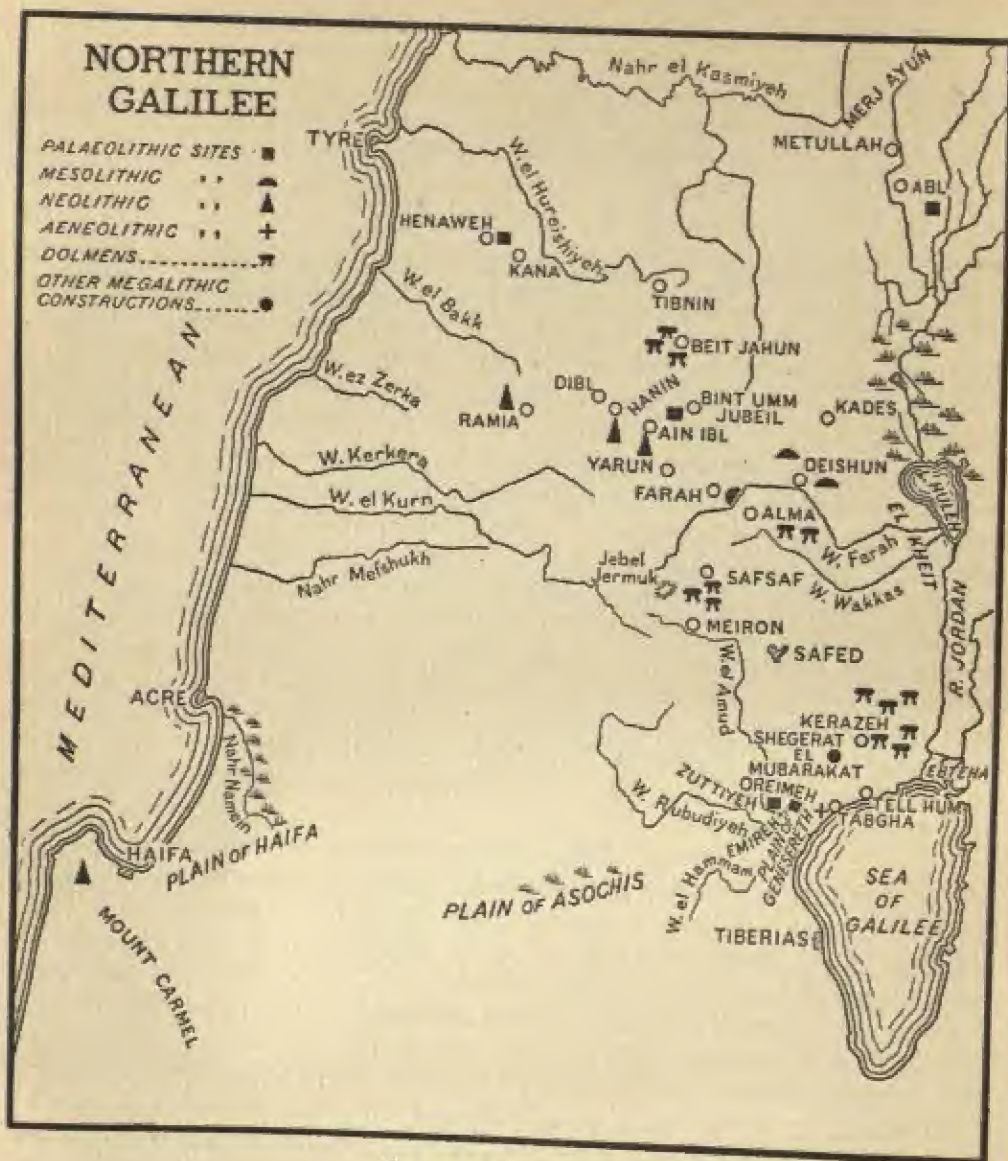
by F. TURVILLE PETRE

THE district with which we are concerned constitutes the northern section of Galilee between the Nahr-el-Kasmiyeh and the Merj Ayun to the north, and the plains of Haifa and Asochis (Sahel-el-Buttauf) and the Wadi Hammam to the south; to the east and west its boundaries are respectively the Jordan and the Mediterranean. The greater part of the region is occupied by a central limestone massif, the Galilean highlands, which rise in a series of terraces from the Jordan valley to a height of nearly 4000 feet above sea level,¹ and then descend steeply to the Mediterranean coastal plain. Much of this country, especially on the western side of the watershed, is barren and uncultivable, but the high central plateau in the north from Yarun to Tibnin and the lower plateaux of Kades and Safsaf include some of the most productive corn-growing districts west of the Jordan. The beds of the larger valleys also, which even in summer are not entirely waterless, provide fertile garden land and are mostly highly cultivated. The more rocky parts of the region provide scant pasturage for flocks of goats, and in most places the olive is cultivated to a limited extent.

In sharp contrast to the mountains is the broad, undulating valley of the Jordan south of Abl and its continuation, the alluvial plain known as el-Kheit on the western shore of Lake Huleh; two streams, the Wadi Farah and the Wadi Wakkas, serve, in addition to several springs, to irrigate this plain. Smaller but no less fertile is the plain of Genesereth at the north-western corner of the Sea of Galilee, watered by the streams of the Wadi el'Amud, the Wadi Rubudiyeh and the Wadi el Hammam. The climate of these plains, lying at or below sea level, and sheltered from winds on all sides, is practically sub-tropical, and in addition to corn, lemons, oranges and bananas are successfully cultivated; in the swampy land to the north of Lake Huleh even rice can be grown.

On the other side of the mountains, the coastal plain, less fertile

¹ The highest peak, Jebel Jermuk, is 3934 feet above sea-level.



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than the Jordan valley, provides excellent corn land, though cultivation is in places rendered difficult by the encroachment of blown sand.

Under present climatic conditions, the region, though admirably suited to the requirements of an agricultural population, presents little except the commodious caves in its limestone hills to attract nomadic tribes still in a hunting stage of culture; the present lack of wild game is, however, mainly due to ages of over-population, and it is probable that in early times the country was much more thickly wooded and animal life consequently more abundant than at present. In any case the inaccessibility of many of the more fertile areas must in all early culture stages have proved a strong inducement to settlement.

Regarded from the point of view of its geographical relation to surrounding regions, Galilee, as indeed the whole of Palestine, is essentially a highway connecting the plateaux of Asia Minor, important as the probable distribution centre of Alpine man, with the ancient culture centre in the Nile valley; moreover Galilee lies directly on the natural line of communication between the Euphrates and the Mediterranean coast by way of Palmyra, Damascus and the Jordan crossings immediately south of Lake Huleh and at its northern confluence with the Sea of Galilee. It has thus at all times been peculiarly exposed to culture influences from the north and south; while the fertile Jordan valley, with its two fresh water lakes, can hardly have failed to attract nomadic tribes from the waterless and inhospitable plateau of the Hauran, so that on geographical grounds alone traces of extremely early human occupation might well be expected.

Until quite recently, however, the country has been practically neglected by students of Stone Age culture. In 1884 indeed Lortet reported the discovery of a palaeolithic station south-east of Tyre,² and in 1908 Bovier Lapi  re in a short note in *La G  ographie* recorded the discovery of several palaeolithic and neolithic factory sites in the highlands.³ The researches of Zummoffen on the Phoenician coast did not extend south of Tyre and consequently fall outside the district with which we are concerned.

The first archaeologist to undertake a systematic search for traces of Stone Age occupation was Dr. Paul Karge of M  nster University, who spent a considerable part of the years 1909-1911 in Galilee and discovered an important late palaeolithic cave site near Dibl. In 1917

² Lortet, *La Syrie d'aujourd'hui*. Paris, 1884.

³ *La G  ographie. Bulletin de la Soci  t   de G  ographie*, xvii. Paris, 1908.

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he published an exhaustive survey of the prehistoric sites then known in Palestine and Syria⁴. Finally in 1923 and again in 1925-26 the writer of this paper spent several months in searching for traces of early occupation in the vicinity of the plain of Genesereth and in the district north and south of the Wadi Farah, and excavated two palaeolithic cave sites.

Both Karge and the present writer confined their researches mainly to the eastern and central areas of the district and from the point of view of prehistory the western side of the mountains is still practically an unexplored field.

In the following pages a brief survey is given of the Stone Age factory and habitation sites so far known.

PALAEOLITHIC PERIOD

Unlike Judea, where sites with coups-de-poing of Chellean type are numerous, Galilee seems to have been but thinly populated during the earlier phases of the palaeolithic epoch. Bovier Lapi  re found a number of Chellean coups-de-poing in a valley of the Khallet-el-Hamra between 'Ain Ibl and Bint-umm-Jubeil and water-rolled specimens have occasionally been reported from the western shores of the Sea of Galilee.

An important, and so far unpublished, station was found in 1925 by members of the frontier police force at Metulla. This site lies some three kilometres south-east of the village of Abl in the plain between the mountains and the Jordan; here over an area about two kilometres square flint implements have been collected on the surface in large numbers. Coups-de-poing predominate; they are of distinctively Acheulean type, mostly finely worked over the whole of both faces, with careful retouch on the cutting edges; commonest are the flat, almond-shaped and oval forms, and a circular discoidal type with one side retouched to a sharp cutting edge, the other blunted to afford a convenient grip. A lanceolate form of coup-de-poing with narrow, drawn-out point and bulging butt also occurs and small discoidal core scrapers are numerous.

The implements do not seem to have been manufactured on the site as neither hammer-stones nor flint nodules are to be found and waste flakes are not numerous; flint is not obtainable in the immediate vicinity. This is the only site yielding a uniformly Acheulean culture

⁴ Repha  m, *Die vorgeschichtliche Kultur Palastinas und Phoniziens*. Paderborn, 1917.

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so far known in Syria or Palestine, though Acheulean types have frequently been found associated with a predominantly Chellean culture.

An open air station with implements of middle Palaeolithic or Mousterian facies was discovered by Lortet⁵ in a valley between the villages of Hennaweh and Kana a few kilometres south-east of Tyre. The palaeolithic deposits are exposed on the surface and form a breccia containing fragments of bone and flint implements, principally Mousterian points and side scrapers; nearby Bovier Lapi  re⁶ discovered a shallow cave with breccia yielding similar implements.

Equally of middle palaeolithic type is the culture of the cave known as the Mugharet-ez-Zuttiyeh excavated by the present writer for the British School of Archaeology in 1925-6. The Mugharet-ez-Zuttiyeh is a large cave some 19 metres deep by 18 metres broad situated in the northern cliffs of the Wadi 'Amud about 40 metres above the modern stream level, and 150 metres upstream of the point where the river enters the plain of Genesereth. Here, below 1 metre of recent stratified deposits containing potsherds of most periods from the early Bronze Age to the present day, was a continuous layer of limestone blocks fallen from the roof, and below these again a layer of palaeolithic habitation d  bris about 1 metre thick. This layer consisted of fine reddish soil entirely different from the recent deposits above. It was in most places quite soft and easily workable, and only formed a breccia on the terrace immediately in front of the entrance, and in small patches towards the centre of the cave. In this layer a large number of flint implements were found together with fragments of animal bone and part of a human frontal bone of characteristically Neanderthal type, the first conclusive evidence of the existence of Neanderthal man outside Europe.

The fauna, which includes several species of deer, bear and hippopotamus, indicates a well-wooded country plentifully provided with water, with a climate probably rather warmer than at present.

The implements, to judge from the abundance of hammer-stones, nuclei and waste flakes, were all manufactured in the cave. They are of typically Mousterian form, triangular points, side scrapers, discs and coups-de-poing in a variety of shapes and sizes predominating. The highly developed technique and the presence of long symmetrical blade

⁵ Lortet, *l.c.*, p. 139.

⁶ Bovier Lapi  re, *l.c.*, p. 78.

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flakes often finely retouched indicate a late phase of the Mousterian industry, while from the large number and excellent workmanship of the coups-de-poing it would seem that this type of implement here retained its popularity much longer than it did in Western Europe.⁷

Not far from the site just described, in a cliff on the edge of the plain of Genesereth, 100 metres north-east of the entrance to the Wadi 'Amud, are two small rock shelters and a narrow passage-like cave known as the Mugharet-el-Emireh, also excavated in 1925. (Plate 1).

The deposits in the main shelter had been badly disturbed, but on the terrace in front and in the shallow second shelter, at a depth of 50 centimetres below recent remains was an undisturbed palaeolithic layer. This yielded together with animal remains hundreds of flint implements of late palaeolithic type including such characteristically Aurignacian forms as double end scrapers and carinate and nosed scrapers; together with these were a series of microlithic points, blades and end scrapers often finely retouched, differing in little but size from the larger implements. These implements, which have nothing in common with the geometrical forms of the Tardenoisian industry, do not seem to occur in European stations. A number of triangular points and side scrapers of typical Mousterian form were also found in the layer, another example of the survival of early types of implements analogous to the association of coups-de-poing with a fully developed Mousterian culture at Zuttiyeh.⁸

Apparently of rather later type are the implements collected by Karge in the Mugharet-el-'Abed,⁹ a small cave shelter in the Wadi Ayun north-west of Dibl on the high plateau in the north of Galilee. Karge did not undertake any excavations, but was able to collect several hundred implements from the surface. These consisted principally of blade flakes without retouch, or with a blunted back (*à dos rebattu*), fine saws, long flakes with scraper retouch at the end and microlithic blades and points often finely retouched; these latter closely resemble the microliths from Emireh, but the greater variety of forms and finer technique indicates a more developed stage of the industry.

⁷ A preliminary notice on the Mugharet-el-Zuttiyeh appeared in the Bulletin of the British School of Archaeology, Jerusalem, no. vii, 1925. A complete report including a study of the human remains by Sir Arthur Keith and a report on the fauna by Miss D. M. Bate has just appeared.

⁸ An account of excavations at Mugharet-el-Emireh is included in the same volume as the Zuttiyeh report.

⁹ Karge, *loc. cit.*, p. 95 ff.

PLATE I



MUGHARET-EL-EMIRCH

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This completes the list of the palaeolithic stations so far known in northern Galilee, and unfortunately neither these stations, nor those in Syria and southern Palestine, have supplied any conclusive evidence by which the palaeolithic cultures of western Asia can be chronologically correlated with the equivalent stages in Europe. From the point of view of technology, the three main stages—early, middle and late—established for the development of palaeolithic industry in Europe are all clearly represented in Palestine, and the middle or Mousterian stage is here as in Europe associated with a highly specialized racial type, Neanderthal man, so that it would seem clear that up to this stage at least western Asia formed part of a general Mediterranean culture area. On the other hand, conclusive geological evidence, on the basis of which alone it would be possible to decide whether or not the spread of the Neanderthal race over western Asia was contemporaneous with its spread over Europe, is practically non-existent from Palestine, and evidence of this nature derived from the terraces of the Nile valley is still very scanty and uncertain. Blanckenhorn,¹⁰ working on the hypothesis that the succession of pluvial and interpluvial stages established for the eastern Mediterranean area are equivalent to the glacial and interglacial stages of Europe, can find no conclusive evidence for the presence of man in the Nile valley before the last pluvial stage represented by the middle terrace, and since the last pluvial stage is supposed to correspond to the last or Würm glaciation in Europe, it follows that at the time of man's first arrival in the eastern Mediterranean, Mousterian culture was already fully developed in western Europe, and man had already been established there through a whole glacial and interglacial epoch. Sufficient evidence, however, had not yet been accumulated to make it possible to come to a definite conclusion on this subject.

The transition from middle to late palaeolithic flint working seems to have been accomplished more gradually here than in Europe, as is shown by the association of typical Mousterian implements with a predominantly Aurignacian culture at Emireh. Since implements of Aurignacian type are apparently not found in Egypt the development of a late palaeolithic culture in Syria and Palestine must probably be accounted for by a gradual infiltration of culture influences from the north; whether these influences included the arrival of a new racial

¹⁰ Blanckenhorn, *Die Steinzeit Palästina-Syriens und Nordafrikas in Das Land der Bibel*, bd. III, heft 5.

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type will only be revealed when human remains are found in a late palaeolithic habitation deposit in this region.¹¹

MESOLITHIC SITES

Probably of Mesolithic date are two cultures discovered in 1926



No. 3 FROM SITE SE OF ABL, EARLY PALAEO-LITHIC.
THE OTHERS FROM WADI FARAH, MESOLITHIC.

north of the Wadi Farah. The first of these is represented at a single site a short distance east of the village of Deishun. On a low rocky

¹¹ The fragments of human bone found by Zummoffen in a late palaeolithic cave site Antelyas north of Beyrout are too incomplete to afford any evidence. Cf. *Anthropos*, III, p. 213 ff.

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hill overlooking the Wadi a number of small flint implements were collected. They seem to be derived directly from late palaeolithic forms ; the predominant types are small conical core scrapers, small disc scrapers worked round all or part of the edge, nosed scrapers and side scrapers worked along one steeply sloping side only. There were also a number of short natural flakes showing marks of use as blades.

The second culture was found at a factory site on the northern bank of the Wadi Farah immediately south of the village of the same name, and again on a small plateau known locally as Shemouniyeh about an hour's walk north-west of Deishun. Most of the implements are thick and massive, and in general technique show resemblances to the Campignian implements of Europe. A characteristic implement is a large rectangular cutter ; one of the longer sides is trimmed to form a strong cutting edge, the other is squared off and blunted to give a firm grasp for the hand. Another common implement is a long, narrow, rectangular block of flint retouched to form a scraping edge along one side and sometimes also at the ends. Borers were produced by careful retouching at the end of a naturally pointed thick flake, or by trimming the angle of intersection of two adjacent edges. Rough flakes of chance shape were used as blades or roughly retouched as side scrapers.

NEOLITHIC SITES

Stations with typical neolithic polished axes, though fairly numerous in Syria, seem to be rare in this region. Bovier Lapière¹² found a rich factory site round a spring below the village of Hanin, where he collected some sixty axes of very elongated form in all stages of manufacture, some only roughed out, others wholly or partly polished ; together with these were nuclei and hammer-stones and long blades sometimes finely retouched. He found similar stations round a pond below the village of Ramia and in the Wadi Yarun between the villages of Yarun and 'Ain Ibl. It would seem that the true neolithic period was of short duration in Galilee, arriving late from the Syrian coastal region and being brought to a premature close by the arrival of the first or Canaanitish Semitic influx and the foundation of the earliest agricultural settlements towards the close of the fourth millennium B.C.

An example of such a settlement is the hill el Oreimeh on the shore of the Sea of Galilee at the north-east corner of the plain of Genesereth.

¹² Bovier Lapière, *l.c.*, p. 78.

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The small city mound at the summit has not been excavated, but Karge collected a large number of worked flints on the slopes of the hill ; these are mostly fragments of rather formless points, scrapers and blades. The predominant type is the sickle stone often with a rough saw edge which is known from Egyptian examples to have been fixed in a curved wooden handle to form a reaping sickle and thus affords the earliest evidence for the establishment of an agricultural mode of life in Galilee. The whole of this early Canaanitish culture is aeneolithic rather than truly neolithic in character, and develops rapidly into the full Bronze Age.

MEGALITHIC SITES

An account of the prehistoric sites of Galilee would be incomplete without some reference to the numerous megalithic remains of the district. Since practically no excavations have been carried out at these sites, it is impossible with certainty to assign any date for the arrival of this culture in Palestine ; in view, however, of the fact that dolmens and other megalithic constructions are most numerous east of Jordan, rather rarer in eastern and central Palestine, and practically unknown on the Mediterranean coast and in northern Syria, it would seem that they are the work of nomadic or semi-nomadic tribes from Arabia, and they may perhaps be tentatively ascribed to the period of the first Semitic migration during the late Neolithic and early Bronze Ages about the beginning of the third millennium B.C.

Three important groups of dolmens are so far known in northern Galilee. The northernmost of these groups is near the village of Beit Jahun on the northern plateau. North of the village on the slopes of the Wadi-es-Suwan Mader¹³ found twenty-one dolmens, seven of which were in a state of good preservation ; south of the village he found three more. They do not form a definite necropolis, but are scattered at random about the hills. The dolmens stand on the natural surface of the ground, with no foundation terrace, or are sunk slightly into the earth ; ¹⁴ in both cases they are low, seldom rising more than a metre above the ground. The dolmen chamber is long and narrow, broader at the inner end than at the entrance, and frequently narrowing from the base upwards. It is built of thin, roughly hewn limestone slabs ; sometimes two or even three slabs are used in each long side.

¹³ Mader, *Zeitschrift des Deutschen Palästina-Vereins*, no. 37 (1914).

¹⁴ An isolated dolmen of this sunken type was found by the writer above the Wadi Farah near the village of Farah (plate II).

PLATE II



DOLMEN NEAR FARAH

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The broader end is closed with a slab, the entrance with piled up stones and the whole is covered with a large trimmed capstone. The majority of the dolmens are orientated SW-NE with the entrance at the north-eastern end, so that the body would lie with the head at the south-west end looking north-east, but the opposite arrangement, as well as N-S and W-E orientation is also found. Many of the dolmens are surrounded by stone circles. The use of thin, regularly trimmed slabs and the invariable wedge-shaped ground plan of the chamber must indicate a comparatively developed stage of dolmen construction.

Another group consisting of thirteen dolmens in all is to be found on the plateau between Safsaf and Meiron at the western foot of Jebel Jermuk.¹⁵ The majority of the dolmens resemble those from Beit Jahun in having a wedge-shaped ground plan and in being low and sometimes sunk into the ground. One dolmen stands on the top of an artificial heap of stones, and similar heaps on which dolmens probably formerly stood are to be seen in the vicinity. The orientation of the dolmens at this site is various, N-S, W-E and most frequently NW-SE with the entrance at the south-eastern end.

The third group was discovered by Karge¹⁶ in the desolate stretch of country strewn with basalt blocks which forms the eastern slopes of the Galilean highlands overlooking the northern end of the Sea of Galilee and the plain of the Ebteha. The dolmens are most numerous in the southern part of the necropolis immediately to the east of Kerazeh, the biblical Korazain, between this site and the Jordan valley, but they extend northwards as far as Khirbet Hajar-ed-Damm and Khirbet abu Loze. All over this area of some three kilometres square small groups of dolmens are to be found.

The dolmen itself is built of local basalt blocks, occasionally roughly trimmed, but usually left in their natural state; the predominant orientation is W-E with a slight tendency towards SW-NE; the entrance is usually at the eastern end. Three distinct stages of dolmen construction are represented. The simplest form, which is rare, consists of four orthostatic blocks and a coverstone (figure 1). In the next stage the dolmen chamber is built up of a lower course of orthostatic blocks, upon which a second course of blocks is laid flat, and upon these the coverstone rests (figure 2); the western end is closed by an orthostatic block, the entrance at the eastern end is closed by smaller

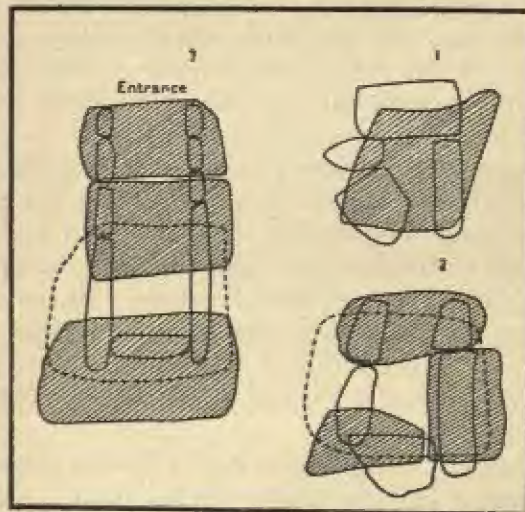
¹⁵ *Memoirs of the Survey of Western Palestine*, 1, 253. Mader, *l.c.*, p. 27.

¹⁶ Karge, *l.c.*, p. 306 ff.

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stones. Small stones are also used to fill in the gaps between the side blocks. Sometimes two courses of blocks lie between the orthostatic slabs below, and the coverstone above, and not infrequently a rough appearance of vaulting is produced by the upper blocks overlapping those below them.

The third type is a simple form of corridor tomb (*allée couverte*) in that the true dolmen chamber is extended eastwards to form a kind of corridor entrance. There is no definite division between the entrance passage and the true dolmen chamber such as is usual in Europe. The main chamber is distinguishable from the passage solely in being covered by the capstone, while the passage is roofed by a single course of blocks resting directly on the orthostatic slabs which form its sides (figure 3).



In addition to this necropolis, the hills between Tell Hum and Safed are strewn with the remains of megalithic constructions ; these include isolated dolmens, stone circles, cyclopean walls and small circular enclosures, the walls of which stand at present about one metre above the ground ; they perhaps formed the foundations of ancient huts. Such remains are particularly numerous on the land called Shegerat-el-Mubarakat south-west of Kerazeh, which is possibly the site of a large megalithic village. Unfortunately none of these sites has yet been excavated or even exhaustively explored.

Oswald Spengler and the Theory of Historical Cycles

by R. G. COLLINGWOOD

SINCE Plato announced that the course of history returned upon itself in 72,000 years, since Polybius discerned a "circular movement" by which the history of states came back, over and over again, to the same point, the theory of historical cycles has been a commonplace of European thought. Familiar to the thinkers of the Renaissance, it was modified by Vico in the early eighteenth century and again by Hegel in the early nineteenth; and a complete history of the idea would show many curious transformations and cover a long period of time. Here no attempt will be made to summarize this story; the subject of the present paper is the latest and, to ourselves, most striking exposition of the general theory, contained in Dr Oswald Spengler's *Decline of the West*.¹

Spengler's view of history presents it as a succession of cultures, each having a peculiar physiognomy of its own which it maintains and works out down to the smallest details, and each following a definite course of development through a sequence of phases that is identical for all. Every culture has its spring, its dawning phase, economically based on rural life and spiritually recognizable by a rich mythological imagination expressing in epic and legend the whole world-view which, later, is to be developed in philosophical and scientific form. Then follows its summer, at once a revolt against the mythology and scholasticism of the spring and their continuation; a period in which a young and vigorous urban intelligence pushes religion into the background and brings to the fore a strictly scientific form of consciousness. The autumn of the culture pushes this consciousness to its limit, while at the same time it sees the decay of religion and the impoverishment of inward life; rationalism, enlightenment, are its obvious marks. Last comes winter, the decay of culture and the reign of civilization,

¹ *Untergang des Abendlandes*, 1918. I quote from the admirable English translation, Allen and Unwin, 1926.

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the materialistic life of the great cities, the cult of science only so far as science is useful, the withering of artistic and intellectual creativeness, the rise of academic and professional philosophy, the death of religion, and the drying-up of all the springs of spiritual life. The four-fold distinction of phases is not a necessity ; at times it is convenient to distinguish more or fewer than four ; but however many are distinguished in one culture the same number is necessarily distinguishable in all others. Thus, the revolt against Gothic which we call the Renaissance is a morphologically necessary phase of our culture ; it is called the exhaustion of the early or primitive phase of a culture and the rise of the conscious or urban phase in which the individual working for himself takes the place of the anonymous corporate effort of the springtime. And therefore the same thing must happen in all cultures ; in Egypt it is the revolt against the " pyramid style," in Greece the close of the archaic period, and so forth. Again, Napoleon in the western culture marks the exact point of transition from autumn to winter, from culture proper to civilization ; the break-up of the state proper and the beginning of imperialism, the victory of the great city over the country, the triumph of money over politics. Hence Napoleon is exactly parallel (or, as Spengler calls it, " contemporary ") with Alexander, who marks the transition from the Hellenic world to the Hellenistic ; in no sense parallel with Caesar, who marks a phase *within* the " winter " period, and is " contemporary " with a phase in western history that still lies in the future. The point which we have now reached is the plutocracy disguised by demagogism, and called " democracy," which is represented by the second century B.C. in Rome.

Thus the cycle repeats itself in the smallest details, every phase reappearing in every cycle ; yet what reappears is never the same phase—nothing can happen twice—but only something *homologous* with it, something which in the new cycle corresponds structurally with something in the old. Here comparative anatomy is the clue. A whale and an elephant lead radically different lives ; everything about each is adapted to its own life ; a whale is altogether whale and an elephant is elephantine through and through ; but every organ and every bone in the one is homologous with an organ or a bone in the other. The task of morphology is to grasp at once the homology or correspondence of parts, and their differentiation by the fundamental difference between the two species. Merely to say " this bone in the elephant reminds me of that in the whale," is unscientific ; and it is

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equally unscientific to say "a whale and an elephant are so different that nothing is gained by comparing them." Similarly it is unscientific merely to mention likenesses in history, a likeness between Alexander and Caesar, or between Buddha and Christ; and equally unscientific to say that the differences between cultures are so profound as to make likenesses impossible. The only scientific thing to do is to recognize at once the likeness and the difference, combining them into the notion of a homology or structural identity. We then see that Alexander and Caesar cannot be homologous, for they fall in the same culture; one closes its autumn, the other helps, though not crucially, to consolidate its winter; and that Buddha and Christ are still less to be compared, because the latter marks the creative spring of the Arabian culture, the former, the congealing winter of the Indian.

This conception is set forth at enormous length in a formless and chaotic volume, heavy with erudition and illuminated by a brilliant play of analogical insight, and a still more brilliant power of discrimination. The unforgettable things in the book are the passages in which the author characterizes such fundamental differences as those between classical things and their modern analogues: in which he illustrates the thesis that "Classical culture possessed no memory, no organ of history in the highest sense," or that the ancients thought of space as the non-existent—this he proves not simply by quoting philosophers but by analysing sculpture and architecture—whereas western man regards infinite space as his true home and proper environment; which again is proved not from Kant but from a study of Gothic and oil-painting. For the philosopher only makes explicit in his own peculiar way an idea which has necessarily been the common heritage of his entire culture; and nothing is more admirable than the way in which Spengler sees and expounds this important truth.

The strange thing is that he seems to think his ideas altogether new. Learned as he is, he is either very ignorant or very reticent concerning the history of his own science. He asserts over and over again that the morphology of historical cultures is a wholly new thing. He seems ready to admit, in a single cautious sentence, that with regard to political history the idea is old; but he denies that anyone has applied it to "*all* branches of a culture." That may be; all is a large word; but if he really knew of the cyclical doctrines of Plato, Polybius, Machiavelli, and above all Vico, which last both anticipates his own in all essentials and goes far beyond it in historical profundity; if he even knew of Professor Petrie's recent and fascinating exposition of the

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same doctrine, he cannot be acquitted of *suppressio veri*. He cannot claim to have omitted them for lack of space ; his book consists largely of repetitions, and of its 250,000 words it would have been easy to devote 250 to naming his predecessors in the field. The fact that he has not done so, makes it incumbent on a critic like the present writer to confess that not only has the main thesis of Spengler's book been familiar to him all his life, but that the reading of it has not given him a single genuinely new idea ; for all the applications of the thesis are mechanical exercises which, so far as the present writer is acquainted with the ground, he has long ago carried out for himself. This one may say without claiming to possess a quarter of Spengler's erudition.

This erudition, gigantic as it is, shows one gap. Spengler is at his worst in discussing philosophy. He shows what must be called a complete misunderstanding of Plato when he mistakes a deliberately " mythical " literary form for a " mystical " type of thought (what philosopher was ever less " mystical " than Plato?); he consistently attributes to the Stoics the fundamental conception of the Epicureans, and incidentally misunderstands its meaning ; and he commits the appalling blunder of asserting that for Descartes the soul is in space—a statement which falsifies the whole modern conception of the relation between space and thought and goes far to explain his long rambling polemics against what he takes to be the philosophy of Kant.

This is not a matter of mere ignorance concerning one department of human history. He is not only ill-informed on the history of philosophy, he is ill at ease in philosophy itself ; and this means that whenever he tries to handle a fundamental problem he does so clumsily and without firmness or penetration. Brilliant on the surface, glittering in its details with a specious cleverness and apparent profundity, his " philosophy of history " is at bottom lacking in orientation, unsound on fundamentals, ill thought-out, and in consequence committed to a method which falsifies even its detail when a crucial case arises. These are serious charges ; they are only made because Spengler's is a serious book which deserves to be taken seriously ; and the first step towards proving them must be to quote falsified details. They are numerous ; here are a few.

" The Greek and Roman alike sacrificed to the gods of the place in which he happened to stay or reside ; all other deities were outside his range of vision " (p. 83). This *must* be true, because it follows from the fundamentally spaceless and timeless character of the classical mind, its insistence on the here-and-now as the only reality. But it

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is *not* true. Even Odysseus prays to his own Athene as he struggles for life in the stormy sea ; and the Roman carries to the ends of the empire the Juppiter Optimus Maximus of the Capitol. The first half of Spengler's sentence is true ; the second is false. This means that he has represented as the whole of the classical mind what was in reality only a part. The tendency to worship the gods of the land was very real ; but it was only one tendency, and it was constantly balanced and checked by a counter-tendency to carry with one the cult of one's own place. *Caelum non animum mutant, qui trans mare currunt.*

Similarly, he asserts more than once that the classical mind was essentially polytheistic, and opposes to it "Magian monotheism" (p. 404), that is, alleges that monotheism is characteristic of the Arabian culture that filled the first millennium of our era. But this is, once more, inaccurate. All the Greek philosophers, until the decadence, were monotheists ; and Spengler knows that philosophy is only a reasoned statement of ideas common to the culture. The monotheism of the philosophers can only indicate a profound strain of monotheism in the whole Graeco-Roman world. And indeed Spengler himself would recognize that strain (for its existence is notorious enough) did not his faulty logic compel him to ignore it in the interests of his morphology.

Again, to take another example from ancient religion, he asserts that classical gods are all gods of the "near" and the "concrete," *numina* resident in things that are here-and-now, this hearth, this door, this field, this river ; this act, whether the act of sowing or the act of love-making ; always the sensuously present and near, never the distant or the future. "It is a deeply significant fact that in Hellas of all countries star-gods, the *numina* of the Far, are wanting" (p. 402). We say nothing of the Sol Invictus, the Mithras, of Imperial Rome ; for with Imperial Rome the author can play heads I win, tails you lose ; in one aspect it is the decadence of the "Classic," in another the rise of the "Magian," and Mithras is obviously Magian. But has he forgotten Zeus-Juppiter, the sky-god ? Has he forgotten the stellar deities of Plato and the philosophical sky-worship of Xenophanes ? Has he forgotten that the adjective selected by himself as the most perfectly descriptive of the classical mind is "Apollinian" ?

These are not superficial flaws. They are not minor errors or inconsistencies such as must exist in any great work. They are sacrifices of truth to method ; they are symptoms of a logical fallacy which underlies the whole book and has actually been erected into a principle.

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The fallacy lies in the attempt to characterize a culture by means of a single idea or tendency or feature, to deduce everything from this one central idea without recognizing that a single idea, asserted in this way, calls up its own opposite in order to have something to assert itself against, and henceforth proceeds, not by merely repeating itself, but by playing a game of statement and counter-statement with this opposite. Everything in the classical mind is by Spengler deduced from the here-and-now of the immediate, sense-given, bodily present. But to assert the present is to deny the absent ; therefore the absent must be present to the classical mind as *that which it is denying*, and it is impossible to concentrate one's mind on denying anything unless one vividly feels the need of denying it ; feels that it is *there* to be denied, that someone, or some obscure force within oneself, is asserting it. Further, when one has denied it, and denied it effectively and overwhelmingly, it reasserts itself in a new form ; and one has to begin over again, in order to meet this new peril. So the attempt to frame a whole life—political, artistic, religious, scientific, and so forth—by working out the implications of a single fundamental idea is foredoomed to failure ; the idea can only live in conflict with its own opposite, and unless that opposite is present as an effective force there is no conflict and no life.

This conception of the mind's life as a conflict between opposing ideas or tendencies is, nowadays, one would have thought, a commonplace. Indeed, Spengler himself says it is. It is the more curious that he should not himself possess the conception ; or rather, that he should base his entire system of historical cycles on denying it. For this is what, in effect, he does. It is true that classical art or thought tends to be easily intelligible, while modern or western tends to be obscure to the many and intelligible only to the few ; therefore, says Spengler, this is the whole truth ; "everything that is classical is comprehensible in *one* glance" ; instead of obscure philosophers, for instance, the classical world has philosophers who can be understood by the man in the street : and in this context he actually mentions Heraclitus, without adding that he was nicknamed "the Obscure" (p. 327). Magian monotheism is dualistic, therefore Jewish religion, being Magian, opposes to Jahweh (whom ? you would never guess)—Beelzebub (p. 312) ! The classical culture only cared for the present, therefore the Hellenes, unlike the Vikings, did not bury their dead in great barrows (p. 333) ; and what of the tombs on the Via Appia ? Magian ethics, unlike Western, were mildly "recommended," not

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imposed as a command (p. 344) ; " the glad tidings of Jesus, like those of Zoroaster, of Mani, of Mahomet, of the Neo-Platonists and of all the cognate Magian religions were mystic benefits *displayed* but in no wise imposed." And did Islam never appeal for its extension to the help of the sword ? Classical art creates an object to be beheld, a thing standing complete here-and-now, not entering, therefore, into any relation with the beholder or soliciting his attention (p. 329) ; what of the *parabasis* of Aristophanic drama ? These are merely examples of the way in which, to bring them into the scheme, facts are constantly impoverished, robbed of one element merely because it is recessive, in order that the other, dominant as it is, may be erected into a false absolute. No one, probably, will deny that the elements which Spengler identifies as characteristic of this or that culture really are characteristic of it ; where he fails is in thinking out what he means by " characteristic." He thinks that the characteristic is a fundamental something whose logical consequences flow smoothly and unopposedly into all its manifestations ; whereas it is really the dominant partner in a pair of opposites, asserting itself only so far as it can keep its opposite in check and therefore always coloured by the hidden presence and underground activity of this opposite. To see the dominant characteristic and miss the recessive is to see history with the eye of the superficial student.

The same fault comes out in a different way in his view of the relation of cultures to one another. Vico, whose work he so curiously ignores, pointed out that the feudal barbarism of the Middle Ages differed from the Homeric feudal barbarism because it contained in itself Christianity, which summarizes and transcends ancient thought (Croce, *Vico*, E.T. p. 132). And even Spengler, when it comes to mathematics, notices that Euclidean geometry is still retained today as elementary or school geometry, so that modern mathematics contains and transcends Greek mathematics. But though he sees this fact, he does not understand it ; for him, every culture is just radically different from every other, based on its own idea and not on the idea of any but itself. Each culture is wholly self-enclosed ; within its limits, it proceeds on a type-pattern exactly like that of the rest, but this similarity of structure is its *only* relation to the rest. For him, therefore, it is a misfortune that our elementary geometry is still Euclidean ; it gets us into bad mathematical habits and sets an unnecessary obstacle in the way of our understanding modern non-Euclidean geometry. Thus the whole idea of " classical education "

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is, we infer, a gigantic blunder. Similarly, it was a misfortune, he thinks, that the "Magian" culture grew up under the tutelage of decaying classical civilization, whose petrified relics prevented the new culture from rising spontaneously, because unopposed, in the Roman Imperial age. But surely it is not very hard to see that non-Euclidean geometry is based upon Euclidean even while it transcends and opposes it; and that the "Magian" culture, far from being stifled by the Roman Empire, used it as a scaffolding for its own building, a trellis for its own climbing flowers. The reason why Spengler denies these obvious facts is because he cannot grasp the true dynamic relation between opposites; his philosophical error leads him into the purely historical blunder of thinking that one culture, instead of stimulating another by its very opposition, can only crush it or be crushed by it. He thinks of cultures atomistically, each as a self-contained or closed system, precisely as Epicurus thought of the "worlds" whose plurality he asserted; and just as Epicurus could do nothing better with the spaces between his worlds than to hand them over to the gods as a dwelling, surrendering all attempt to make sense of the relation between world and world, so Spengler plugs the gap between one culture and the next with a crude, cultureless human life which insulates each culture from its neighbours and makes it impossible to envisage an historical whole of which every culture is a part. He actually claims that the abandonment of the historical whole, and the atomistic view of cultures, is a grand merit of his system; and so it is, for it cuts out the real problem of history, the problem of *interrelating* the various cultures, which is the problem that requires profound and penetrating thought, and leaves only the problem of *comparing* them, a far easier task for those shallow minds that can accept it. And if, as Spengler says, this is the age of shallow and decadent thought, of unphilosophical philosophy and unscientific science, his philosophy of history is, as he says it is, precisely what our age needs.

The fact is that Spengler, with all his erudition and historical learning, lacks the true historical mind. Learning does not make the historian; there is a *sense* of history which is not acquired through erudition, and for this historical sense we look to Spengler in vain. History deals with the individual in all its individuality; the historian is concerned to discover the facts, the whole facts and nothing but the facts. Now comparative anatomy is not history but science; and Spengler's morphology is simply the comparative anatomy of historical periods. The historical morphologist is concerned not to discover

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what happened, but, assuming that he knows what happened, to generalize about its structure as compared with the structure of other happenings. His business is not to *work at* history, but to *talk about* it, on the assumption that someone else has already done the work—the work, that is, of finding out what the facts are, the historian's work. In this sense, Spengler nowhere shows the slightest desire to do a piece of historical work, or the slightest sign of having done one. His history consists of ready-made facts which he has found in books; and what he wants to do is to arrange these in patterns. When the man with historical sense reads a statement in a history book, he at once asks, is that really so? What evidence is there? How can I check the statement? and he sets to work doing over again, for himself, the work of determining the fact. This is because the historical sense means the feeling for historical thought as living thought, a thought that goes on within one's own mind, not a dead thought that can be treated as a finished product, cut adrift from its roots in the mind that thinks it, and played with like a pebble. Now the extraordinary thing about Spengler is that, after giving us a penetrating and vivid description of the difference between history and nature, and setting up the demand that we shall envisage "the world as history"—an admirable demand admirably stated—he goes on to consider the world not as history but precisely as nature, to study it, that is to say, through scientific and not historical spectacles, and to substitute for a truly genetic narrative, which would be history, a self-confessed morphology, which is science. And he is forced into doing this by his own philosophical errors, his errors, that is to say, concerning the structure of his own thought. He prepares us for all this, it is true, by his open scorn of logic and his statement that Goethe and Nietzsche are his only two masters; for neither Goethe nor Nietzsche, with all their poetic gifts and fine intelligence, had any grasp on the distinction between nature and history. And Spengler himself praises Goethe for confusing the two, for treating Nature as history and a culture as an organism.

The touchstone of the historical sense is the future. Science determines the future, foretells an eclipse or the like, just because the object of science is Nature and "Nature has no history." The laws of Nature are timeless truths. For history, time is the great reality; and the future is the infinite well-spring of those events which, when they happen, become present, and whose traces left upon the present enable us to reconstruct them when they are past. We cannot know the future, just because the future has not happened and therefore

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cannot leave its traces in the present. The historian who tries to forecast the future is like a tracker anxiously peering at a muddy road in order to descry the footsteps of the next person who is going to pass that way. All this, the historian knows instinctively. Ask him to forecast a single instant of the future, and he will laugh in your face. If anyone offers to foretell events, he speaks not as an historian but as a scientist or a clairvoyant. And if he offers to foretell events by means of historical thinking, he is either hoaxing his audience or saying historical when he means scientific. Spengler again and again claims that his morphology enables him to foretell the future. He even says that therein lies its chief merit and novelty; in which context, as usual, he refrains from mentioning his predecessors, the crowd of sociological writers, led by Marx, who have made just that claim.

But his claim to foretell the future is absolutely baseless. Just as his morphology does not work at history but only talks about it, does not *determine* the past but, assuming it as already determined, attaches labels to it, so this same method does not determine the future, but only provides a set of labels—the same old set—for a future that is undetermined. For instance, Spengler tells us that between A.D. 2000 and 2200 someone will arise corresponding to Julius Caesar. Well, we ask, what will he do? Where will he live? What will he look like? Whom will he conquer? All Spengler can say is, he will correspond to Julius Caesar; he will do the kind of things that a person would do, who corresponded to Julius Caesar; he will live in a place corresponding to Julius Caesar's Rome; he will look like a person corresponding to Julius Caesar, and so forth. But, we must reply, this is not predetermining history. Suppose, instead, it were a question of the past: suppose we asked, who corresponded to Julius Caesar in the Egyptian culture? Suppose, now, we were told, "oh, the answer is easy: the person who corresponded to Julius Caesar." This would be *the wrong answer*: it would have determined nothing: it would be a mere confession of ignorance concerning the Egyptian past. The *right* answer (Spengler has given it) would be "Thutmosis III." This is a real answer because it names an actual concrete individual in actual concrete circumstances; and until we can do that, we have not determined any history at all. But if the past is not determined until we have said "Thutmosis III," the future is not determined until we can say "John Jones of Bulawayo," or whoever it will be. Spengler's claim to foretell the future is on a par with saying that the possession of a clock will enable its possessor

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to foretell the future because he can say that twelve will happen an hour after eleven. No doubt ; but what will be going on at twelve ?

There is another reason why the claim is wholly futile. On his own showing, the decay of classical culture in Rome synchronized with the rise of Magian culture in the very same culture-area. Thus cultures may overlap both in space and in time. In Hadrian's reign, then, a Spengler might have diagnosed a general petrification and decay of everything classical, and said that the Roman world was a dying world. And when someone pointed to the Pantheon, and said, "is that a symptom of decay?" the answer would be, "that is an example of imperial display by means of material and mass" (see table II at the end of the book), "and therefore it is meaningless, barren, vulgar civilization-architecture." But a counter-Spengler would retort, "not at all ; the Pantheon is *the first Mosque* (pp. 72, 211, 358—as usual, he says it three times over) "and therefore belongs to the exuberant springtime of a nascent culture." Now it follows from the atomistic view of cultures that a new culture may begin anywhere, at any moment, irrespective of any circumstances whatever ; and there is no possible proof that one is not beginning now. But if so, what becomes of "predetermining the future" ?

It is all the more hopeless because there is no possible way, according to Spengler, of discovering what will be the fundamental idea of any hitherto undeveloped or unexamined culture. This, of course, follows from the atomistic conception ; but its results are very serious. If any two cultures happened to have the same fundamental idea, they would be indistinguishable ; the person corresponding to Julius Caesar would be Julius Caesar himself, repeated identically, name and all, at another date. That this possibility follows logically from Spengler's conception shows how profoundly anti-historical that conception is ; that he has not observed it to follow, shows how ill he has thought out his own position. But on the other hand, if the fundamental idea of one culture differs from that of another, how can the one understand the other ? Spengler unhesitatingly answers, it cannot. We do not understand the classical world ; what we see in it is our own image in an opaque mirror. Very well, but how does he know this to be merely our image ? How does he know that we are not understanding the past as it really was ? There is no answer, and can be no answer ; for the fact is, unless we understand the ancients well enough to know that we do not understand them completely, we can never have reason to suspect that our errors about them are

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erroneous. Spengler, by denying the possibility of understanding other cultures than our own, has denied the possibility of history itself. Here again, bad philosophy—a crude half-baked subjective idealism—brings its own punishment. If history is possible, if we can understand other cultures, we can do so only by re-thinking for ourselves their thoughts, cherishing within us the fundamental idea which framed their lives ; and in that case their culture lives on within ours, as Euclidean geometry lives on within modern geometry and Herodotean history within the mind of the modern historian. But this is to destroy the idea of atomic cultures, and to assert not a mere plurality of cultures but a unity of that plurality, a unity which is the present culture, the heir of all its past. Against that conception Spengler struggles, because, having no historical sense, he does not *feel* it, and, being a bad philosopher, cannot understand it ; yet that conception is presupposed on every page of his work. “ The unities of place, time and action ” I read, opening it at random, “ are . . . an indication of what classical man felt about life ” (p. 323). And how does Spengler know what classical man felt ? Only by putting himself into the position of classical man and feeling it too. Unless he has done that, he is deliberately deceiving us ; no man knows what another feels if he is incapable of feeling it himself.

Spengler’s so-called philosophy of history is therefore, we may repeat, lacking in orientation, because it reduces history to a plurality of cultures between whose fundamental ideas there is no relation whatever ; it is unsound on fundamentals, because its purpose—that of “ predetermining the future ”—is impossible in itself and in any case unrealizable by his methods ; it is ill thought-out, because he shows no signs of having seen the fatal objections to it ; and it is committed to the methodical falsification of facts because it distorts every fact falling—or alleged to fall—within a given culture, into an example of an abstract and one-sided idea which is fancied to represent the essence of that culture. In all four respects, it is an unworthy child of the historical studies of the last two hundred years. In each respect it violates elementary dictates of the historical consciousness ; in each respect it is far surpassed by the cyclical doctrines of Hegel, a hundred, and Vico, two hundred years ago. Vico realized that culture (to retain Spengler’s term) could not arise by a miracle out of a uniform, purely cultureless, life ; that barbarism contained the seeds of culture in itself, and produced culture by their germination. Thus Vico does away with Spengler’s crude and superficial dualism between cultured

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and cultureless life. Further, granted that culture arises out of what Vico calls a "barbarism of sensation" and decays into a "barbarism of reflexion" (the latter being Spengler's civilization), after having achieved a homogeneous development, economic and legal, religious and artistic, scientific and linguistic, Vico sees that this rule is merely approximate and not *a priori* necessary; he sees that there are exceptions to it, or, at least, that it is subject to such diversities of application in practice that it cannot serve as a basis for prophecy. This is, at bottom, because, the fundamental ideas of the various cultures being different, the cultures themselves will develop in different rhythms. Obviously, here Vico is right. What could be more ridiculous than Spengler's assumption that every idea will take the same number of years to develop through its different phases and exhaust its possibilities, no matter what idea it is? For that matter, why should it have the same phases at all? "We find," someone might plead, "that it does;" but Spengler is not entitled so to plead; for he asserts that a given culture *must* have passed through this or that phase, unknown though the phase may be, because others have done so.

Every culture, then, is surrounded not by sheer non-culture, but by other cultures, more or less perfect, perhaps, than itself; higher or lower, perhaps, in the scale of value; but yet cultures. That is the first modification to be made in Spengler's doctrine. Secondly, while recognizing that a given culture has a certain self-consistent character, a fundamental idea which is working itself out into a complete social life, we must assert that this idea or character is not static but dynamic; it is not a single unchanged thing, miraculously born at one time, then persisting unaltered, and finally wiped out of existence, but a process of spiritual development, an idea which grows out of other ideas, in an environment of other ideas, which asserts itself against these other ideas through a process of give-and-take in which it modifies them and is modified by them in turn. In this process, culminating points are reached in which a given idea seems to have achieved an absolute domination. Here the whole culture becomes brilliantly luminous with the light of this idea; luminous to itself, so far as its own human vehicles grasp the idea consciously, luminous to us, so far as we can recreate their idea within our minds and so see what their life meant to them. But the domination is never absolute. It is always a domination over something; there are always other ideas knocking at the gate, kept out by force, whose pressure against the ring-fence of cultural life is equal and opposite to the expansive force of the life within. So

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the highest summits of culture reveal a contradiction between what they assert and what they deny—Greek liberty resting on Greek slavery, capitalist wealth resting on capitalist poverty—and in the long run the mere attempt to work out the cultural idea consistently, to *live* it (rather than *think* it) to the full, destroys the culture. But the destruction of one culture is the birth of another ; for there is no static entity called a culture, there is only a perpetual development, a development in which what has been won must be lost in order that something further may be won. And everything that is achieved in this process rests on the basis of all that has been achieved in its past phases.

Because this process is always the same, though always new, it is easy to find analogies and homologies between any part of it and any other. But when we cut it up into sections and say " here begins classical culture, and here it ends : here begins Magian culture, and here it ends," we are talking not about history but about the labels we choose to stick upon the corpse of history. Better historical thinking, deeper historical knowledge, would show us within the heart of classical culture, not a single unchanged idea, but a dynamic interplay of ideas, containing elements which, even quite early, prepare it for its conversion into Magian. It is bad history and bad philosophy alike to argue that because the Pantheon is Magian it is not classical. Follow that up, and you will find that nothing is classical. It is truer to say that the classical is not a style but an age, a process, a development, which led to the Magian by its own inner logic. Thus the Pantheon is *both* Magian *and* classical ; it is classical in the act of *turning into* Magian. And this conception of " turning into," the conception of becoming, is (as Spengler himself industriously asserts, and industriously forgets) the fundamental idea of all history.

What, then, remains of the conception of historical cycles ? Much ; for though a " period " of history is an arbitrary fabrication, a mere part torn from its context, given a fictitious unity, and set in a fictitious isolation, yet, by being so treated, it acquires a beginning, and a middle, and an end. And we fabricate periods of history by fastening upon some, to us, peculiarly luminous point and trying to study it as it actually came into being. We find our eye caught, as it were, by some striking phenomenon—Greek life in the fifth century, or the like ; and this becomes the nucleus of a group of historical inquiries, asking how it arose and how it passed away ; what turned into it, and what it turned into. Thus we form the idea of a period, which we call the

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Hellenic period ; and this period will resemble the Byzantine period or the Baroque period *in being a period*, that is, in having a luminous centre preceded and followed by processes whose only interest to us at the moment is that they lead to and from it. From another point of view, the movement leading away from fifth-century Greece, the "decline of Hellas," will figure as the movement leading up to the Hellenistic world. Was it, then, "really" a decline or an advance ? Neither, because both ; it was a becoming, a change, a development ; and the historian's highest task is to discover *what* developed, through *what* phases, into *what*. If anyone is not interested in that question, he is not interested in history.

Thus the historical cycle is a permanent feature of all historical thought ; but wherever it occurs, it is incidental to a point of view. The cycle is the historian's field of vision at a given moment. That is why it has been so often observed that history moves in cycles ; that is why, when people have tried, as many have tried, to formulate a system of cycles, that shall be "objectively valid," valid apart from any momentary point of view, they have failed with a failure whose completeness and strikingness has always been proportional to the rigour with which they have pursued the project. In a short essay, slightly written, anyone can expound a plausible system of historical cycles. Perhaps the very length of Spengler's book, and the very learning that he has lavished upon it, are well spent in revealing, as no shorter or less learned work could have done, the impossibility of the task he has attempted.

Explorations in the Northern Fayum

by MISS G. CATON-THOMPSON

IN the winter seasons of 1924-5, and 1925-6 the British School of Archaeology in Egypt granted me generous facilities to go to the Fayum and conduct, on its behalf, a preliminary inquiry into the question of the significance of the obscure prehistoric period known there since many years by the quantities of fine and varied flint implements reported, and picked up, on the desert surface of the northern area, by explorers and dealers.

So little, however, was then known of the cultural horizon of this distinctive flint industry, that almost equally cogent typological arguments could be advanced for its palaeolithic, neolithic, or chalcolithic origin. Indeed the only certain and agreed fact about the implements was their dissimilarity to the flint tools and weapons of the predynastic civilizations of the Nile Valley. This fact in itself, coupled with their absence in predynastic graves, seemed at least to indicate their probable chronological priority; though on the other hand one could speculatively counter-balance against this view our complete ignorance about the cultural inter-relations existing between the men of the desert and the Nile Valley dweller, so sharply distinguished, even now, the one from the other. My own attitude, as I considered the question before me, was therefore one of complete open-mindedness, or perhaps vacuity; the presence of ground hard-stone, and polished and chipped flint axes, noted in museum collections from the Fayum, seemed to me a matter of fundamental importance; but there was no means of estimating their age—of knowing whether or no they were contemporary with the more abundant pressure-flaked implements and arrow-heads. The collections were sweepings off the desert surface, of value only in so far as they whipped up interest in the problems lying at the back of them.

The neglect which this Fayum desert had received from archaeologists was due largely to the difficulty of maintaining permanent camps so far from fresh water. I decided therefore that I would endeavour as an experiment to overcome this difficulty by means of car, rather

PLATE I



THE "CROCODILE" RIDGE
P. O. R. Carlson

EXPLORATIONS IN THE NORTHERN FAYUM

than camel, transport. This measure, on the whole, justified itself and enabled a party of 14 to maintain themselves for some weeks in a camp 20 miles from water, measured on the map, and considerably more in reality owing to the twists and turns of a self-made track in rough country.

The most striking thing perhaps which meets the eye on nearing the edge of the Fayum basin from the north-west—the Cairo direction—is the sharp topographical antagonism between the cultivated zone of the southern area of the depression, with its numerous prosperous towns, villages and rich agricultural activities, and the naked desert and steep, gaunt boundary scarp of the northern area:—the brilliant greens and blues of vegetation on the one hand, and the still more beautiful golds and ambers of the sands and rocks on the other. The sight startles the mind into a vivid realization of the transmuting power of irrigation—the power of controlled water moulding and clothing the earth's features on one side; the power of unchecked wind, sculpturing, disintegrating, annihilating them on the other. Not always has the whole of this northern area been desert; traces of a vanished irrigation system, marked by long strips of derelict embankment, may still be seen in the basin west of the Graeco-Roman ruins of Dimê.

Curious results of wind-driven sand erosion on the comparatively soft tertiary rocks of the northern Fayum are frequently met. The resulting shapes are controlled, in the first place, by the fact that many of the sandstones and sandy limestones are of unequal hardness, the harder parts or concretions being usually either round, or lenticular. The effect of wind-action on such rock is very well seen south-west of Dimê, where a fine-grained sandstone forms a ridge running from north to south.

¹ " This sandstone is concretionary, the concretions being lens-shaped, and averaging from 10–12 feet long. In the more sheltered parts the softer rock between the concretions has not been worn away, and the surface is more or less regular, but in the exposed areas every stage in the weathering out and final disintegration of the concretions can be seen, presenting a most remarkable sight. (Plate 1). The concretions lie with their long axes north and south, and as they gradually emerge from the surrounding rock, the windborne sand wears them away as with a file, accentuating the tapering ends and

¹The following description is contributed by Miss E. W. Gardner, geologist to the expedition.

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gradually reducing them in size. Before the process has gone very far the softer material has been scoured away from all sides of the concretions, and they are left standing out prominently on mounds, which remain just so long as the harder material forms a protection for them.

"The undercutting of the concretions, together with the tremendous strain set up in the rocks by the variation of temperature during night and day, result in another remarkable feature—the repeated splitting across of the concretions at right angles to their length. This cracking occurs at very regular intervals, and is possibly located along original lines of weakness. The effect is that of a series of enormous vertebrae of some giant reptile petrified in the rock, an effect well seen in the photograph. The sight of hundreds of these monsters all facing in the same direction is most extraordinary, and earned for this particular region the name of 'The Crocodile Ridge.' The resemblance to giant reptiles is still further accentuated by the original irregularities in the rock, some weathering out as spine-like ridges along the back, others giving the appearance of scales."

"As the undercutting is carried further, first the smaller 'tail' vertebrae, and finally the larger blocks roll down the sides of the mound on which they originally perched. This result is hastened by the sand, which drifts under the concretions, and acts cumulatively as a powerful lever, turning the segments first on end, and finally upside down. In this way 'tails' may be found separated by a considerable distance from their 'bodies.' This process marks the beginning of the end in the life of the 'crocodile'; the 'vertebrae' become smaller and smaller, and the mound is soon reduced to the general level, while other new monsters arise to carry on the breed."

The lowest point of the basin, separating cultivation and desert, is filled by a sheet of brackish water—the Birket el Qarun, whose surface lies 148 feet below mean sea level at Alexandria. (Plate II). This lake, about 25 miles long and 5 miles wide at its broadest point is but the lingering remnant of far more extensive predecessors. Old shore lines and lacustrine deposits rising to a height of 222 feet above present lake level, with an abundant sub-fossil fresh-water, vertebrate and invertebrate, fauna, are particularly well developed in certain parts of the northern desert area, with more limited counterparts on the southern side; whilst a still higher series of older quaternary fresh-water deposits cap certain high ridges now forming a watershed, at a height of 260 feet over present lake—a height not only sufficient to fill up the

PLATE II



WEST END OF BIRKET EL QARUN FROM THE TERTIARY SCARP

Fig. E. W. Gardner

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Fayum basin itself to the brim, but which would link it up (if the level of the divide was approximately the same in those times), in a continuous sheet of water with a great subsidiary depression to the south-west, the Wadi Rayan. This last event would seem to carry us back into the middle palaeolithic age; the archaeological associations belong to Mousterian types; they may even subsequently prove, as a result of further investigation and wider co-ordination, to conform to Déperet's Monastirian stage. Be that as it may, it is, however, with neither of these past stadia in the history of the lake that we must link up the "Fayum industry" which provided the main objective to the expedition: *their* numerous sites lie, as we were soon to find, strung out on a long line, at a lower horizon than either of these last, consistently at about 190 feet. (See map, where sites are indicated by alphabetical letters). Now in connexion with the distribution of these "Fayum industry" sites two interesting facts emerge as a result of Miss Gardner's close contouring and detailed geological investigations (the first specialized results of which are embodied in her paper in the *Geological Magazine* for September 1927). One is that these sites are concentrated around the base of sheltering stacks of lacustrine sand-rock representing the attenuated survival of deposits of the older 222 feet lake: in Miss Gardner's own words "since the level at the base of the lowest of these outlying masses is in the neighbourhood of 190 feet, it follows that the water of the 222 feet lake had disappeared, and sufficient time had elapsed for the deposits to be hardened and greatly eroded before the Fayum industry people lived among them."

The second fact of interest is that these sites—characterized by a débris of rough sherds, flints, both chips and whole implements, and hammer stones, lie some 15 feet *below* a well-marked shore-line which may be traced intermittently over an extensive area; this runs at 205 feet over present lake, and possesses a fauna differing from that of the higher lacustrine levels. It becomes evident then that our people arrived in the Fayum not only long ages after the 222 feet lake had become a thing of the past, but that most of their main sites were founded after the 205 feet lake level had fallen from its maximum. A correlation with any fixed point in time for these geological events is impossible—the latitude is too great: all that emerges with certainty is that our 205 feet level is long, long post-Mousterian—long enough for deposits of that age to be left as old fluvatile or lacustrine cappings to a present hog-back ridge; and for even yet another high-level lake to lay down thick deposits, shrink and expose its old bed to consolidation

PLATE III



KOM W, COOKING POTS IN SITU
PW, G. Cabot-Thompson

EXPLORATIONS IN THE NORTHERN FAYUM

and subsequent scour on a large enough scale to remove, over a considerable area, some 32 vertical feet of its material. These facts alone would, personally, compel me to preclude all thought of a palaeolithic origin, even a late one, for the flints in question, even were the archaeological evidence we succeeded in obtaining less convincing on its own independent merits. For this evidence we are mainly indebted to a large settlement, or kitchen-midden, marked on the map as "Kom W." This mound, some 600 by 400 feet in diameter, though by no means prolific in proportion to its size, furnished enough material to place the enigmatical "Fayum industry" at last in its true context; for, contained in its 5 feet or so of deposit were found whole pots of the same rough-faced, hand-made pottery (plate III) whose sherds we had noted on surface sites, definitely associated with many of the well-known types of flaked flints, and above all with an abundance of fine polished and chipped flint axes, and rare, ground basalt specimens as well. The deposits in which these were embedded, in some places so consolidated by salt that a hammer and chisel had to be employed for the disengagement of the object, were archaeologically homogeneous throughout, no variation of type in the specimens being perceptible. The pots were either large, round bottomed, straight-sided cooking pots of primitive aspect, dull red or grey-red in colour, or small cups and bowls, equally undistinguished by salient feature. One form only stands apart sufficiently distinctive to act in future investigations as a precious touchstone in the geographical distribution of the people who made it. This is a shallow rectangular bowl with a rim characterized by four peaks, defining the corners. Although only two complete specimens were found, one of these being now in the British Museum, the other in the University College collection,² numerous rim fragments show that the bowl was common. I myself was unacquainted with the form in early Nile Valley potteries, nor did exhibition in London produce any suggestions from Egyptologists concerning its affinities. It was only in subsequent research into Nubian and "pan-grave" cultures (where I suspected our Fayum connexions might lie) that a similar type appeared, figured in the British School of Archaeology's volume in *Rifeh*, pl. xxv, 44, and where its "pan-grave" origin—XIII–XV dynasties—is well attested. It will be remembered that these "pan-grave" folk, so called on account of the shape of their graves, are, throughout a considerable period, sporadic intruders into the Nile

² Figured in *Man*, 96. 1925. Plate K, no. 2.

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Valley in advanced dynastic times. Their most characteristic pottery is wheel-made, incised in rectilinear pattern ; at the same time they continued the manufacture of " black topped " pottery retaining the characteristics of the predynastic technique : indeed in many other

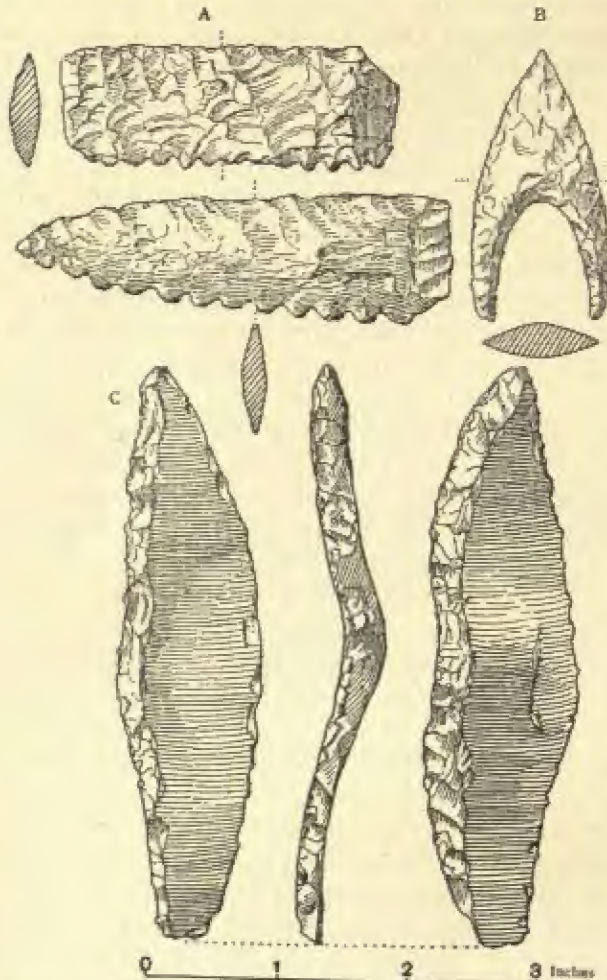


FIG. 1. TYPES OF FAYUM INDUSTRY FLINTS
 a—Sickle flints. b—Concave base arrowhead. c—Side-blow flake.

respects they show a material culture singularly reminiscent of early predynastic Egypt, though they had out-grown the use of flint implements in favour of metal. The discovery at Rifeh, therefore, in such late associations, of a bowl whose form forbids the use of wheel, is

PLATE IV



BASKET FROM GRANARY PIT

Pl. G. Caton-Thompson

EXPLORATIONS IN THE NORTHERN FAYUM

interesting. I am not, be it understood, suggesting for one moment that our Fayum industry with its hand-made, monochrome, unornamented wares, and perfection of flint technique, has any *chronological* connexion with XIII-XV dynastic "pan-grave" times. But the vase type referred to is so unusual that it is impossible to pass over the coincidence, or curb a suspicion that it may provide a clue to ceramic tradition in the unexplored desert.

Material of cross-dating value was, indeed, completely lacking in our settlement; the place provided, however, unequivocal evidence of the neolithic status of its inhabitants; hand-mills, sickle flints (fig. 1, A) and the bones of sheep or goat, pig and ox being relatively abundant. For ornament ostrich egg and green microcline felspar were used for working into beads; whilst Mediterranean or Red Sea shells, such as *Cardium* and *Pectunculus*, were perforated through the umbone for suspension. Not a trace of metal object, or metalliferous ore was found. The art of weaving was indicated by limestone spindle whorls. Curious circular holes riddled the floor of the mound, sunk into the underlying lacustrine sands of the old high-level lake upon which it rested; these, too small and shallow for the most part to be true "*fonds de cabanes*," were filled with darker midden earth than the surrounding deposits, and contained minute traces of charcoal. Many sherds, and sometimes a whole cooking pot came from these holes; that is intelligible; what is less obvious is the inclusion of arrow heads and axes and other flint implements in their contents. Altogether 17 different types of implements were collected, of forms well-known from surface collections. Of arrowheads the large concave-base type (fig. 1, B) was the form found in the mound, the small tanged type (fig. 2, B) was represented by one specimen only (from a second mound some miles distant), but this was too near the surface to be accepted without further corroboration as contemporary.

Both types may be found on the Fayum desert in very large quantities, the small tanged form showing a remarkable range of ingenious variation. Unfortunately we are still badly documented on the history of African arrowheads and their distribution. The concave-base type is certainly early; it was found at Badari with the oldest predynastic civilization—the Badarian—and when figured from other places in connexion with predynastic graves, either in Nubia or Egypt, it seems to be confined to the earlier periods. Its geographical extension appears to be limited in comparison with that of the small tanged form: the Fayum is the main centre of its abundance, though

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it appears at those three eastern outliers of the industry—Wadi el Arish, Gaza, and Askalon. To the west it has not yet been reported from Siwa, though other flints of Fayum type are known from there ; nor is it included except in ultra-microlithic form, in any collection known to me from Algeria, Tunisia or Morocco.

The small tanged type, on the other hand, has hitherto been noted as appearing later on the scenes of predynastic times, and is in evidence not only in the royal tombs of the protodynastic age, but onwards without interruption, as late as the viiith century B.C.³ Its distribution throughout the whole of North Africa is comprehensive.

I have met with no specimens of the usual type of transverse arrow-heads in the Fayum. I would, however, like to suggest for consideration that the triangular flint (fig. 2, A) with its broad chisel edge and bluntly pointed apex, may conceivably be intended for this use.

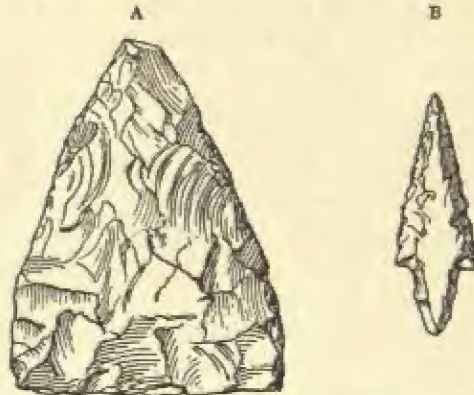


FIG. 2. A—Chisel-arrowhead B—Tanged arrowhead

The general facies of Kom W and its contents differs in a striking fashion from predynastic settlements in the Nile Valley, where even the earliest shows a far more advanced culture.⁴ That these Fayum mound dwellers were permanently established inhabitants, and not wandering tribes in a nomadic or semi-nomadic state of organization, appears to be attested by our subsequent discovery of their granary site (K ridge on

³ *Sudan Notes and Records*, 1919. Vol. II, no. 4.

⁴ A possible exception may have to be made for a primitive settlement at Helwan, near Cairo, discovered by Father Bovier Lapière, which is unpublished, and only very imperfectly explored. The site contains "fonds de cabanes", rough pottery, and fragments of polished axes, and is clearly quite unconnected with the well-known Helwan microlithic industry.

PLATE V



SICKLE IN SITE IN STRAW LINED GRANARY
Ph. G. Caton-Thompson

EXPLORATIONS IN THE NORTHERN FAYUM

the map) consisting of 63 sunk pits, of which 48 were, or had been, lined with coiled wheat straw. It seems that these were prepared by first digging a circular hole of the desired size in the shelly gravel which capped the ridge: a coating of wet mud was next applied to floor and sides, serving not only to bind the loosely-consolidated deposits from crumbling in, but also as a retaining plaster for the straw lining; this was evidently coiled up "in situ," floor and walls being made in one piece, fitting snugly into the circumference of the hole. Plate v shows an example, about 2 feet 6 inches in diameter and 10 inches in depth; in some cases the lining had become partially detached and was discovered doubled in and sagging.

The majority of these silos were empty, but seven of them still contained small quantities of wheat and barley, and polygonum seed; in other granaries we found pots similar to those discovered in the middens, one of them containing fragments of coarsely woven linen; also objects of basketry, including flat platters or dish covers, and a fine example of a boat-shaped basket 41 cm. in length, 25 cm. wide and about 14 cm. high (plate iv). This also was made in a coiled technique, the monotony of the horizontal ribbing being broken by 16 groups of three-strand vertical lines in a darker colour. The basket is made of two materials, but the nature of these cannot be more closely defined by the Royal Botanical Gardens at Kew, than "stems of a dicotyledonous plant and of a grass." But perhaps the most interesting find of all inside a granary was a wooden sickle 51.5 cm. in length with three saw-edged flints in position (plates v, vi). The flints are still firmly held in the groove cut to receive them (which starts at a distance of 13 cm. from the butt) by a dark glutinous substance. The end flint is snapped in two, and one may suspect that accidents were not infrequent, on the evidence of the other two blades which fit neither each other, nor their retaining groove. The curve of the shaft inclines to the left if held in the right hand at the proper cutting angle, thus embodying, in its primitive way, a principle of true sickle curve, so well understood in the pre-Sumerian specimens (made of clay), and further elaborated in the Middle Kingdom example known to us from Kahun, which though wooden-shafted like ours, has its prototype in the mandibular ramus of an ox. The find of this interesting specimen, in conjunction with the pottery, proved conclusively the connexion between middens and granaries. Wide questions are thereby opened up concerning the origin and spread of early agriculture, which we must hold in suspense until a satisfactorily

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established relative dating for the Fayum midden industry can be obtained. This, I think, will probably be achieved only by the discovery of the graves—more likely to produce material of cross-dating value than the mounds. Every endeavour will be made next season to obtain these.

The agricultural question as it stands in the meanwhile has recently been the subject of a very thorough inquiry by the President of the Anthropological Institute.⁵ He has shown the logical necessity—owing to the geographical distribution of the wild plants—of attributing the origin of agricultural discovery to near Asia; the knowledge of cultivated cereals—wheat and barley—had spread thence to the Nile Valley certainly by predynastic times; but he makes it clear that no unimpeachable record of it exists there before the *middle* predynastic; and that fact, unless disproved by well-authenticated discoveries of yet earlier grain in Egypt, fits in with what we know to have been an influx of Asiatic influence and products—wavy-handled vases and pear-shaped maces in particular—at just that same time. Should further excavations prove the Fayum granaries to be earlier than the middle predynastic period in Egypt we shall have to face the uncomfortable yet supremely interesting task of revising this estimate, and attempting a reconciliation between many apparently incompatible archaeological facts.

In the Fayum we are on the threshold of obtaining extensive vistas of fresh archaeological material, affecting wide areas. The most recent work of the Desert Survey⁶ has revealed another hitherto unknown region of oasis formation, the Qattara, forming a link between the Fayum and the Siwa chain of depressions separated from each other by some 300 miles of desert. If, at the epoch of the Fayum culture these desert conditions had already begun to set in, as there are both geological and archaeological grounds for believing,⁷ this route at least, with its abundant water supply at fixed points, would offer no difficulties of movement long ages before the advent of camel transport, and must have been in immemorial use. In this direction aerial survey will be an incalculable boon to archaeology, revealing unsuspected channels of communication to and from the desert interior impossible to detect by any other means.

⁵ *Nature*, 18 June 1927.

⁶ See Dr. J. Ball, *Geographical Journal*, July, August and September 1927.

⁷ See our paper, *Journal Royal Anthropological Institute*, vol. LVI (1926) 304, 313.



SICKLE WITH FLINT BLADES
P⁶ C. O. Waterhouse.

EXPLORATIONS IN THE NORTHERN FAYUM

The Siwa group of oases and the Kharga oasis—the Baharia has so far yielded no information—share, on the evidence of the flint implements from them, a neolithic culture in common with the Fayum. One of the most specialized of Fayum implements—(fig. 1, c) so specialized with its bulb of percussion, produced by a side blow on the core, lying in the *centre* of two lateral wings, with alternate retouch of the margins, that its presence must certainly denote connexion with the Fayum culture wherever it is found—is included in the collection from Siwa in the Cambridge Ethnological Museum.

These places await scientific exploration with strict archaeogeological reference to each other's evidence. Wide as is the scope of research in these directions, to name but a few for this particular period of human history, the scientific potentialities of Fayum exploration itself are full of promise. Material of importance to historical archaeologist and vertebrate palaeontologist abounds. The famous Eocene bone beds, discovered by H. J. E. Beadnell, await a worthy successor to the late Dr C. W. Andrews; their working, not only at the points where he collected, some 20 miles from water, but far beyond, in untouched fields, no longer presents the difficulties of 25 years ago. The hills, capped by a great sheet of basalt, and dominated by the imposing twin peaks of Widan el Faras, lead in a series of steep scarps up to the level of the Libyan desert, nearly 1000 feet above lake level. After three unavailing attempts to force our car up on to the middle scarp in which the bone beds lie, we hit upon a practicable line of ascent, and on 23 January 1925 had the satisfaction of proving, in the interests of future expeditions, their accessibility to motor transport. The initial climb ended, the way follows for some miles across the broad gentle slope of the middle scarp, through desert scenery of impressive grandeur; buttresses and cliffs of alternating rose red and golden sandstone, in a variety of brilliant shades, guard the approach to the main range of the Gebel el Qatrani, with its grim capping basalt sheet, cascading down steep slopes in giant falls of subterranean blackness. The way is strewn in places with great trunks of fossil wood, carried down, as Beadnell^a first suggested, from the south-west continental interior, together with mammalian bones, by a great river draining into the estuary which then covered the Fayum area, as the tertiary sea gradually receded northwards.

^a H. J. E. Beadnell, *Topography and Geology of the Fayum Province*.

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The bones of strange ancestral mammals strengthen the overwhelming impression of a return to an extinct, uncanny, strangely beautiful, pre-human world. The region shows, compared with the low desert, few traces of human visitation. The little-used camel track to the Baharia Oasis passes through it for some distance: ancient flintmine workings on a hill top: remains of a stone circle of roughly-piled up blocks of basalt: an inscription on a rock, $\parallel \parallel \overset{\circ}{V} = \circ \parallel \parallel$: the 25-year-old traces of the Beadnell-Andrews camp: these, and above all in arresting interest, a long straight four-mile thread of ancient road running north (plate VII).

This road was first noted by Beadnell in his official survey memoir, but he gives no photographs or details as to structure or probable age, beyond its label on the map "ancient quarry road." Since then no further details have, to my knowledge, been added. The road, at its lower extremity, availing itself of gaps in the scarp immediately west of the little dynastic temple of Qasr el Sagha, is not, in fact, recognizable as man's handiwork until it emerges on the level of the middle scarp, whose main features we have already indicated. Here, with the unbroken width of the scarp plain to cross in its progress northwards to the hills—its ultimate destination—it straightens out into a line of paved track, about 7-8 feet broad, carefully laid with slabs of whatever rock was handiest to collect at that point of its course. Much of this is rather friable sandstone, which has weathered badly, and forms a surface, compared to which the stony desert on either side is smooth going. The slabs, however, though wide interstices separate them, still lie fairly flat.

At another point the sandstone paving is succeeded by a stretch of unusual—perhaps unique—road metal, the logs of fossil wood already referred to laid side by side, sleeper fashion across the road. The trunks naturally vary in size, but the average diameter is about 1 foot. Two big dumps of basalt blocks by the wayside give a clue as to the road's ultimate destination; but no pottery has yet been found to give a clue as to its makers. Nearing the final hills, the road becomes more broken—in places even difficult to trace—owing to destructive drainage from the hill slopes; but we picked it up again under the frowning peaks of Widan el Faras, at a point where it is raised and cambered above the surrounding level, in order, presumably, to avoid the racing spates in time of storm. Following on another $\frac{1}{4}$ mile we suddenly come to the abrupt termination of our quest, sharply brought up against a steep hill-side, down which has shot a dark mass of basalt

PLATE VII



ANCIENT QUARRY ROAD RUNNING NORTH ACROSS THE MIDDLE SCARP TOWARDS THE TWIN PEAKS
OF WIDAN EL FARAS
Pb. E. W. Gardner

EXPLORATIONS IN THE NORTHERN FAYUM

blocks from their sill-bed upon the summit : a nature-worked quarry (plate VIII). Not far away a large, sunk, sand-filled hollow, fringed with corrugated Roman pottery litter, gives a first clue as to the probable quarrymen. The presumptive evidence seems strong, supported as we were afterwards to find it, by lumps of basalt, and Roman sherds at a low level, far away, near the present lake. On the other hand, none of the Graeco-Roman towns and temples of the Fayum show any trace of basalt in structure or decoration. Dimê, an important and extensive ruin calling for excavation, lying 4 miles nearly due south of the road's termination near Qasr el Sagha, shows, superficially at least, not a trace of this material ; nor does the other nearest Ptolemaic town of Kom Ashim, though this has been extensively excavated, and lumps of basalt may actually be found on the low desert in its direction. Road metal for export ? We know of none.

The only possible alternative to the road's Roman origin would seem to lie in connexion with the dynastic temple of Qasr el Sagha : its termination, a great elongated dump of colossal, weathered basalt blocks, is within a stone's throw of the building. The temple is built of giant blocks of sandy limestone, and is stripped of all adornment ; its very date is uncertain. But such passing attention as we—not Egyptologists and engaged on other work—were able to give it, indicates that it is not later than the Middle Kingdom : I would myself suggest that it was originally built in Old Kingdom times, and continued in use up till the Middle Kingdom, my reasons being based on the presence in its immediate vicinity, concentrated in regular "workshops" of limestone and alabaster débris, of great quantities of crescentic, hollow flint grinders, which are known to date from protodynastic to Old Kingdom times ;⁹ and fragments of contemporary, spouted vases. That the place, however, was also occupied in the XI-XII dynasties is certain. Not only are shaft-graves of that age within a stone's throw—we collected a scarab, and elements of a wooden funerary boat from old spoil heaps and ravaged fillings—but we discovered during the first season a small cemetery of 41 graves of this age at the base of the lowest scarp.

Now, in addition, a fragment of inscribed, polished basalt from the temple area seals the evidence for the later date. But this basalt is a fine-textured stone, unlike our coarse-grained local material, and seems

⁹ Bet Khalláf. Hierakonpolis. Sakkara. Temenos of Osiris, Abydos.

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unlikely, curiously enough, to have the same source. The probabilities of our road origin, therefore, seem to lie with the Romans; but the subject is well worth following up in further study and greater leisure.

The archaeological work in the Fayum of the British School, starting with knowledge at zero, has established that certain types of pottery, flint and bone implements, axes, granaries with wheat and barley, and basketry, are contemporary with one another; investigations must go still further and tell us their age relatively to Egypt, incidentally throwing light, maybe, on the Libyan stratum in Crete; it must tell us the burial customs of these people, and their physical aspect. It must solve the arrowhead chronology, and extend our knowledge of the finer forms of handicrafts of the period. The Fayum geological work, starting with knowledge little above zero as far as concerned the Pleistocene, has established the existence of at least three distinct lake periods, and their attendant fauna, where before one only had been suspected; it has linked up one of these specifically with the Fayum industry. It must go further and coordinate these episodes with geological events in the Nile Valley and endeavour to fit each one within its framework of pre-history.

Arrangements are being made for a continuation during the coming season of the work begun in the Fayum on behalf of the British School of Archaeology in Egypt, by Miss G. Caton-Thompson. The Royal Anthropological Institute have authorized her to make application on their behalf to the Department of Antiquities for a renewal of concession; and have appointed her director of the excavations. The party will again include Miss E. W. Gardner who will continue her work on the fauna and past history of the lake levels. For this purpose Miss Gardner has been granted a year's leave of absence from Bedford College where she is Lecturer in Palaeontology.

Plate 5 reproduced from *Journal Anthropological Institute* (1926) lvi, by permission of the Institute.

[EDITOR]

PLATE VIII



TERMINATION OF ANCIENT ROAD AT BASALT SCREE, NEAR WIDAN EL FARAS

Ph. E. Benson

facing p. 340

Notes and News

UR OF THE CHALDEES

Seldom in the history of excavation has there been such a magnificent harvest as that yielded by the last season's work at Ur. The expedition is jointly supported by the British Museum and the University of Pennsylvania, and during the five years it has been in existence it has been directed by Mr C. Leonard Woolley. Previous campaigns have been devoted to the clearance of buildings and of the great Ziggurat; last winter three cemeteries were discovered and partially cleared. The oldest is considered by Mr Woolley to belong to about 3500 B.C., and he regards this date as a conservative one. The graves contained a wealth of gold and copper objects, together with some of silver. Most startling of all, grave 580 contained fragments of wrought iron.

The objects discovered have been on exhibition at the British Museum throughout the summer. The same grave 580 contained also a solid gold adze of excellent workmanship, with a cylindrical hole for insertion in the handle; a gold spearhead with a long tang; two small gold chisels; a small silver jug and a silver belt; carnelian beads and beads of gold filigree. All these are assigned to about 3500 B.C. In addition there is exhibited an inlaid gaming-board perfectly preserved; a limestone relief showing a chariot belong to the "1st Dynasty of Ur, 3100 B.C." as described on the label. Over three hundred cylinder-seals were found, and many are exhibited together with photographs of flat impressions made upon plasticene—an admirable method of displaying the design and much better than exhibiting plaster impressions, which require a side light and are seldom seen to advantage in museum cases.

We reproduce, by kind permission of the Trustees of the two Museums, some impressions of the seals. They represent the usual mythical scenes of heroes and animals. The top and bottom ones date to about 2600 B.C., and the two middle ones to about 3200 B.C.

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A large plan of Ur, showing the buildings which have been uncovered, is shown ; and there is a mosaic of air-photographs of Ur and its surroundings. One of the most pleasing features is a series of water-colour drawings by Mr A. S. Whitburn. There is a charming distant view of the great Ziggurat, reflected in mirage, and standing out boldly against the hazy blue ; the desert atmosphere is there. A reconstruction of a typical house of Abraham's time—about 2000 B.C.—is also reproduced as the frontispiece of this number, by permission of the Trustees of the two Museums. There are also coloured reconstructions of the courtyard and sanctuary of E-Dub-Lal (about 1400 B.C.), and of the courtyard of the Gig-Par-Ku of Nin-Gal (about 2000 B.C.)

In our editorial notes we have referred to the future plans of campaign, and we would again urge our readers to support this epoch-making work in the most practical way possible.

STONEHENGE AVENUE

In order to ascertain whether the Avenue crossed the modern Stonehenge-Amesbury road, trenches were dug on 28 June 1927 at the southern edge of the field which lies between that road and the farm buildings of West Farm, Amesbury.

Air-photographs show the lines of the Avenue ditches running down to the Stonehenge-Amesbury road, but owing to the fact that the field on the south side is down to pasture no traces of the ditches can be seen there. Mr Crawford had marked down the probable line of the continuation of the Avenue, and trenches were cut at right angles to this line. There were no surface indications of the ditches.

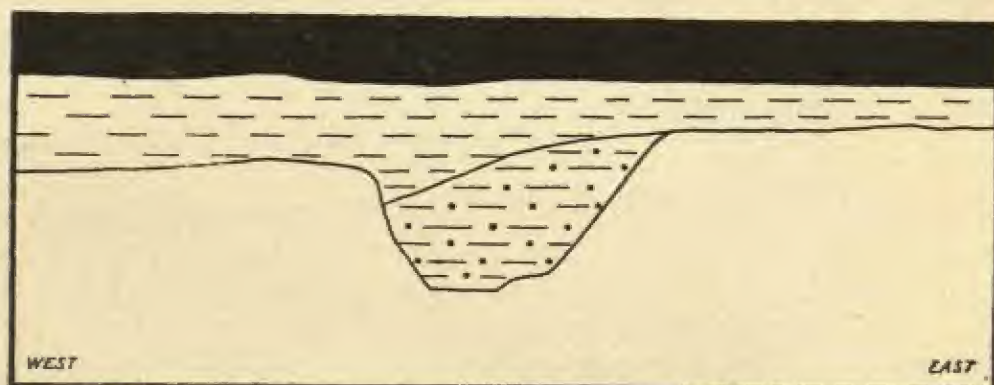
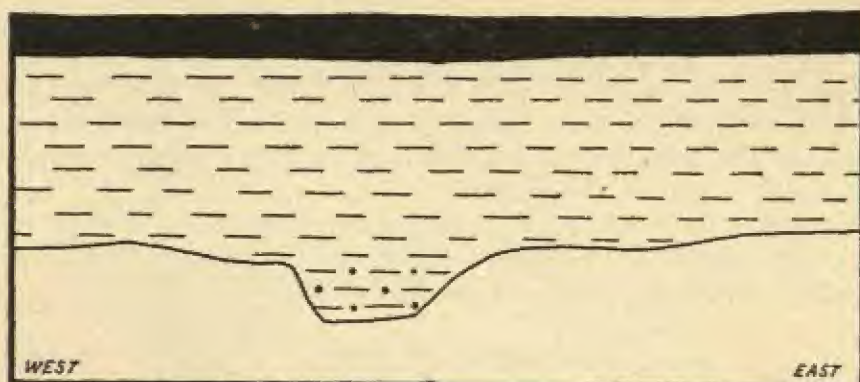
The left hand or eastern edge of the Avenue was revealed as a flat-bottomed ditch 1 foot 10 inches below the surface and 10 inches below the level of the undisturbed chalk. The width of the flat bottom of the ditch was 1 foot, and at the level of the undisturbed chalk the ditch was 2 feet wide. There was no increased depth of humus over the ditch. Beneath the humus over the ditch the soil consisted of earthy flint rubble, but in the filling of the ditch proper there was a sloping silt of earthy flint rubble with a considerable admixture of chalk. This silt sloped from the eastern or outer side down to the western or inner side of the ditch, and suggests that it must have come in from the former edge. There were no indications of a bank but the direction of the silting implies that there was one outside the ditch on the far side of the Avenue. Near its Stonehenge







SEAL IMPRESSIONS FROM UR

NOTES AND NEWS

termination however the bank is inside the ditch. A few scraps of pottery, mostly medieval, and some fragments of bone and two or three flakes were found in the top soil near the ditch. No pieces of sarsen or blue-stones were discovered.



- | | |
|---|--|
|  Humus |  Earthy flint rubble with chalk |
|  Earthy flint rubble |  Undisturbed chalk |

SECTION OF DITCHES OF STONEHENGE AVENUE

The western or right hand ditch of the Avenue was found in that portion of the field which had been cultivated up to recent times. Consequently the humus and top soil was deeper over that area. The ditch was flat-bottomed with a steep side to the west and a more sloping

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side to the east. The bottom of the ditch was 8 inches in width. Below the level of the undisturbed chalk the filling of the ditch had a quantity of chalk in its composition, but this layer did not slope, as in the eastern ditch, but lay horizontally. There was no indication of a bank.

The distance between the ditches, measured from centre to centre, was $110\frac{1}{2}$ feet. The variation in the width of the Avenue is a remarkable feature. At the Stonehenge end it is 70 feet, between the Old and New King barrows 68 feet, halfway between the King barrows and its crossing of the Stonehenge-Amesbury road 84 feet, and immediately to the north of the road 113 feet.

Some search was made along the outer edge of the Avenue but no stone or post holes were found. There were however indications that trees had formerly grown in the vicinity of the left hand ditch.

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R. C. C. CLAY.

CAERLEON

We quote the following, from a leaflet which has recently been circulated, because it contains the latest and most authoritative account of the Roman legionary-fortress.

“Caerleon, as its Welsh name implies, represents ‘the camp of the legion’—in particular, of the Second ‘Augustan’ or ‘Royal’ Legion, which made its home there at some uncertain date between 50 and 75 A.D. This legion had formed part of the Roman army of conquest in the year 43, when it was led by a future Emperor of Rome across the south of England; and, in one place or another, it remained in Britain until the fourth or perhaps the beginning of the fifth century. How long it was actually stationed at Caerleon we do not know, but its arrival on the banks of the Usk (whence the new fortress received the name ‘Isca’) was of twofold significance. It marked in effect the

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CAERLEON

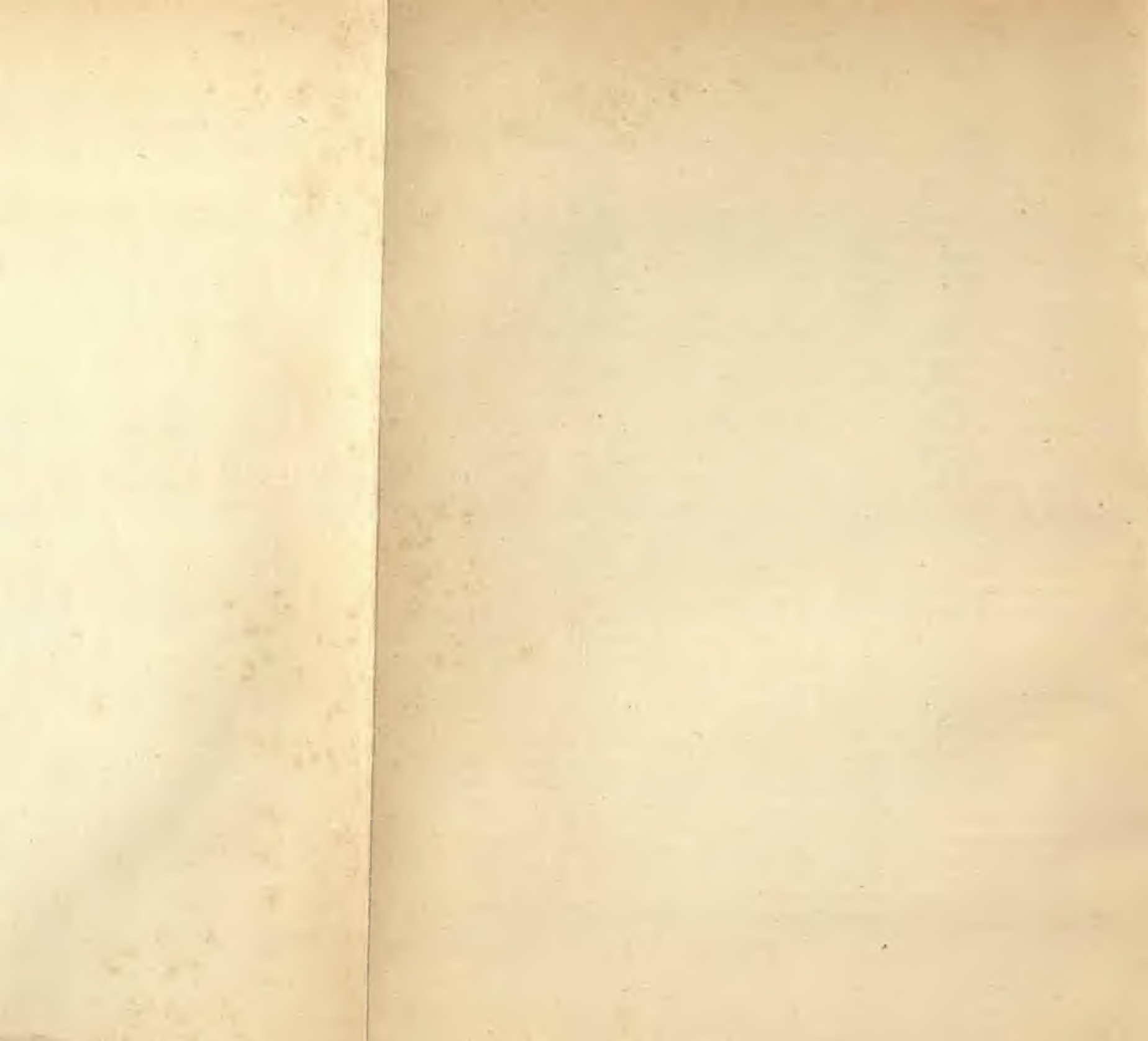
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CAERLEON: GENERAL PLAN ~ ROMAN BUILDINGS IN RED.



NOTE.—The field to be excavated in 1927-8 is that covered by the compass points.



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beginning of history in western Britain; it marked also the establishment of the final frontier of the Roman Empire in north-western Europe. With Chester and York, it formed the permanent base of the system of lesser forts and military roads whereby the richer lowlands of England were shielded from the mountaineers of Wales and northern Britain. Unlike York and Chester, however, both closely encumbered with medieval and modern buildings, the present township of Caerleon but thinly covers the site of the ancient fortress. Some 60 acres of vacant land within and around the defences are known to contain the remains of Roman buildings. In short, Caerleon is, on the one hand, a site historically of European interest and, on the other hand, the only site of its kind in Great Britain where exploration on any considerable scale is still feasible.

"The visible evidences of the fortress are not numerous but they are sufficient to indicate both its extent (some 50 acres) and the approximate position of the settlement which, here as elsewhere, grew up outside the walls of the fortress. The enclosed area was nearly square (540 yards by 460 yards) with characteristically rounded corners fortified by internal towers; the defensive system included an earthen bank revetted externally by a stone wall, which, at the southern corner still stands to a height of 10 feet. Beyond this lay the fosse, now largely filled up but visible continuously along the south-western side. The Roman gateways have vanished, but their position is marked by four roads which converge upon the centre of the fortress where, under the present churchyard, once stood the headquarters building. But the most striking visible relic of the Roman era is the amphitheatre—the largest known in Britain—which has been completely excavated with funds generously supplied by the *Daily Mail* and is now a National Monument. With its eight entrances and well-preserved walls, it is amongst the best preserved Roman structures in Great Britain. For the rest, the racecourse and the fields adjoining the amphitheatre are known to cover Roman foundations including baths and probably a temple of Diana; unscientific excavation long ago revealed and destroyed the main bath-building of the garrison outside the eastern corner of the defences; slight excavations carried out 20 years ago by an enterprising Liverpool committee uncovered part of a building near the centre of the fortress; and chance has disclosed Roman cemeteries, with many inscriptions, on both sides of the river.

"When Gerald the Welshman came this way in the 12th century, time and the builder had not yet dealt so hardly with Roman Caerleon.

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'Many vestiges,' he wrote, 'of its former splendour may yet be seen, immense palaces, once ornamented with gilded roofs, in imitation of Roman magnificence . . . a town of prodigious size, remarkable hot baths, relics of temples and theatres all enclosed with fine walls . . . You will find on all sides, both within and without the circuit of the walls, subterraneous buildings, aqueducts, and underground passages.' Of these 'vestiges,' many must still lie buried, and with them the materials from which the archaeologist may reconstruct something very nearly approaching history—material such as inscriptions, coins, and pottery of known date and origin. Once disturbed without record, these materials lose a great part of their scientific value, and it is the imminent risk of widespread disturbance that has brought the Caerleon Excavation Committee into being.

"The work of excavation will be directed by Mr V. E. Nash-Williams, M.A., Keeper of Archaeology in the National Museum of Wales, and an interim report will be issued annually. Subscriptions should be sent to the Hon. Secretary, Caerleon Excavation Committee, Caerleon, Monmouthshire."

Our thanks are due to the Caerleon Excavation Committee for lending and permitting the use of the block for the accompanying plan.

ROMAN BARROWS

We who live in the South of England are so familiar with the prehistoric burial-mounds of the chalk downs that we are apt to regard all round barrows as prehistoric. There, the majority are undoubtedly prehistoric; but even in Wessex some are of later date. Proof of age is not always to be obtained by mere inspection; but it is sometimes possible. Certain facts which have been observed recently suggest that, under certain conditions, it may be possible to distinguish Roman barrows at sight. On the open down within a few yards of Badbury Rings in Dorset are three barrows set in a row beside the Roman road. They are unusually steep-sided and conical in shape, and are surrounded at the base by a small steep bank, outside which is a ditch of the same size. Their appearance is quite unlike that of bell-barrows of the early Bronze Age. The Roman road is perfectly preserved here, apart from the fact that the flint crown has in places been removed. Most of the down has never been under plough in modern times. The Roman road is flanked on either side by parallel banks forty yards apart; now these banks are interrupted by the row of barrows

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in such a way that it is evident (both on the ground and from the air) that the barrows are *later* than the road-banks, and are therefore Roman or later. If, as is probable, the Roman road was made in the first century, the barrows may well be Roman.

Supporting evidence comes from the Mendips. Here, Mr E. K. Tratman found a barrow (lat. $51^{\circ} 17' 17.5''$ N; long. $2^{\circ} 40' 40.5''$ W), of precisely similar form lying 200 yards, or less, off the Roman road from Old Sarum to Charterhouse. It forms one of four, placed in a row parallel to the Roman road. It was customary to set tombs thus beside roads, both here and in Italy. In East Anglia there are many instances of Roman barrows thus placed, the best known being the Bartlow Hills. The age of these was proved by excavation to be Roman. Others are the Six Hills at Stevenage, and the Eastlow Hills at Rougham near Bury St. Edmunds, the mounds being in each case placed in a row beside a Roman road.

The subject is dealt with at length by Dr Cyril Fox, now Director of the National Museum of Wales, in *Archaeology of the Cambridge District* (Cambridge, 1923, pp. 191-200).

Roman barrows occur also in isolation. Such is the Mersea Island barrow (lat. $51^{\circ} 47' 26''$ N; long. $0^{\circ} 56' 01''$ E) excavated by the Morant Club in 1912. (*Trans. Essex Archaeological Society*, N.S. xiii, 116-39). It contained a glass bowl with cremated bones, placed within a leaden casket in a brick vault. Isolated Roman barrows have been excavated fairly frequently in Buckinghamshire and Hertfordshire, and have generally yielded rich interments. The Radnage glass vessels now in the British Museum (*Antiquaries Journal*, iii, 334-71, plate xxxv) may perhaps have formed part of a barrow-burial, though now all trace of the mound has vanished. Such interments indicate prosperity; they were the graves of people of the upper class—prosperous Britons, and the occupiers of Roman villas. Indeed the two are frequently found close together, and one might even go further and look for a villa in the neighbourhood of the barrows. A case in point is the barrow at Fawler, near Wantage (lat. $51^{\circ} 35' 29''$; long. $1^{\circ} 31' 32.5''$ W). It is isolated, steep-sided and conical, according to Mr Stuart Piggott, who has visited it. Round the skirt of the mound is a shelf or berm, which may represent a denuded bank; but it is planted with pines and is also covered with thick undergrowth which makes accurate observation very difficult. The locality is an unlikely one for prehistoric barrows, nor have any such been observed near. What is even more interesting is the name of the adjacent

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hamlet—Fawler. This is undoubtedly the OE *fagan flore*—spotted floor—meaning a tessellated mosaic pavement. There is another place of the same name 18 miles away in Oxfordshire; and there, right in the village itself, a mosaic pavement belonging to a Roman villa was found in 1865. (The site is marked on the 6-in. map of Oxfordshire, sheet 26 NW; and the derivation of the name was explained in the Introductory volume of the English Place-name Society, p. 143). It is quite certain that a Roman villa exists somewhere at the Fawler near Wantage, but so far no traces of it have come to light. A small wood near bears the suggestive name of Bath-house Copse, but Mr Piggott reports that not a vestige of pottery or tiles can be found there; The name may of course refer to some modern feature.

Generally speaking, the suggestion may be hazarded that a large number of these *isolated* barrows, occurring in regions which are for the most part barren of prehistoric remains are really of Roman origin. Some, such as the Asthall barrow, excavated by Mr E. Thurlow Leeds, F.S.A. (*Antiquaries Journal*, iv, pp. 113–26) and Scutchamer Knob, the grave of Cwichelme, are of course Anglo-Saxon (F. M. Stenton, *Place-names of Berkshire*, p. 31); and it would have been impossible from their form alone to assign an age. Others, if closely examined, may reveal traces of the characteristic surrounding bank. This is a new line and one worth following up. The Editor would welcome information about the characteristics of barrows placed in rows beside roads which are, or appear to be, Roman; or about any isolated barrows which are found to have the characteristic features described above.

SIR FLINDERS PETRIE'S EXCAVATIONS IN PALESTINE

For reasons already stated in the press, the work of the British School of Archaeology in Egypt has now been transferred to Palestine. Professor Petrie began his first season's work at Gerar, near Gaza, last winter. The following account, by the Professor, is reprinted from the *Illustrated London News* (2 July), by kind permission of the Editor:

"If you will take down from your shelves a certain unfashionable history called Genesis, much will be found in it about the importance of the old city of Gerar. The patriarchs named there used to seem to be at the beginnings of things, but now far older ages have become familiar to our eyes; the times of Abraham and Isaac come in the midst of well-known ages, and it is well to try to understand their surroundings.

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Gerar was a good place to search for the history of Palestine, for, being a frontier town facing Egypt, it was certain to have many links with what is well known.

"So last December a party of eight from the British School of Archaeology in Egypt left Gaza, and, going nine miles south over perfectly bare, brown, rolling country, with only Bedawin tents in sight, they settled at a mound now known as Tell Jemmeh, the ancient city of Gerar.

"In order to search the place it was needful to clear town after town, one over the other. Each town that we bared had long walls and rooms to be surveyed, and the position and level of everything that was found required to be noted on the drawings of the objects. Thus when the town of the age of the Jewish kings was bared and recorded, it had to be all removed in order to reach the town built by Shishak which lay under it. So altogether six successive towns were cleared, by cutting away about thirty feet of the mound. The period of each of these towns is identified by its contact with known history from 1500 down to 400 B.C. From this each foot of level has its own date and connections established.

"A matter of general interest is the early history of iron. Here the oldest iron knives date as far back as 1350 B.C.; by 1200 B.C. there were furnaces for iron-smelting, and large tools were being made—a pick of seven pounds weight, large hoes, and plough-irons. Elsewhere two sword-furnaces were found having a cubical fireplace, and a raised bed leading from it more than three feet long, for heating the sword-blades. Excepting one ear-ring, all the gold found in the site was at one level, of about 1200 B.C. The gold frontlet was probably placed on a statue; with it was a gold grounding of a roundel with lotus flowers and buds. Eight gold ear-rings were of this same age. These are of just the time when 'they had golden ear-rings because they were Ishmaelites,' as is said of the people of Midian whom Gideon slew. Evidently this temporary abundance of gold was well known to the writer of the Book of Judges.

"Coming down to the occupation by Shishak—he built a town with well-laid foundations of several courses of bricks laid in sand, which marks the out-level of his work. Here in the floors of the houses we found several little crocks containing the jewellery of the ladies, who had hidden it in this way for safety. One set consists of three necklaces of carnelian and agate, a row of little blue glazed collars with the head of the cat goddess of Egypt—Bastet—which belong to

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this dynasty ; an ivory figure of the goddess Hathor—otherwise Ashtoreth ; a Babylonian black cylinder with figures ; and many small Egyptian amulets. Another hoard had a necklace of rock crystal and carnelian and others of carnelian and agate. A long girdle of cowry shells is a token of some decline in wealth, as it was a cheap ornament. A later hoard had similar necklaces and girdle, with a scarab set in a silver mounting.

“The popular goddess of the Jewish idolater was the Queen of Heaven, Ashtoreth, to whom the women were very devout, as Jeremiah describes. The innumerable pottery figures were the household centres of her worship. When Egypt ruled, as under Shishak, the hair is arranged as an Egyptian wig, like the middle head on the left ; when Syria was in power the hair ends in a coil on each side, as the middle figure in the lower row. A usual way of making such figures was to turn an upright pot on the wheel, attach feet below, and stick in a moulded head on the top, the peg end of which is plain in the centre head of the top row here. As the models became worn in repeated moulding, the detail of the hair was recut in clumsy fashion. Certainly art did not help devotion in the worshipper.

“The influences of the further East are mainly seen at the time of Shishak, whose name Sheshenqu shows that he came from Susa in Persia. The rough pottery models of chariots which had wheels are also found in Assyria, and various forms of arrowheads were derived from Central Asia. A trachyte lamp-bowl with a bull's head came from the north. Later Assyrian rule under Esarhaddon produced a large cylinder of lapis lazuli with two sacred figures which are well known in Babylonian mythology ; these are the bird-scorpion with the head of a god, and the dugong figure of the god Ea, who civilized mankind. Many little incense altars of Assyrian form were found, of the same age. A rubbish-pit of this time contained a great quantity of broken table-service of pottery ; the forms and material are quite unknown hitherto in Palestine. The graceful bowls and the very thin egg-shell fabric mark this for Assyrian, and it seems to be the waste from the house of the governor, who imported his crockery from home.

“Meanwhile, there had been European influences between the two Oriental periods. About the ninth century B.C. the safety-pin, or fibula, was brought into Palestine, where it was made in a form unknown elsewhere, with the butt of the pin inserted in a socket of the bow. The last stage was to do away with the spring of the pin, and swivel the



THE MOUND OF CLEAR

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pin sideways on a rivet joint. Many pieces of coloured glass-work from Cumæ, and a profusion of Cypriote pottery, also mark the age of Mediterranean influence.

"A block of sandstone helps us with the history of the week; it has rows of fourteen strokes, which belong to a seven-day week, and not to a lunation. Another block has on it the frame of concentric squares, for a game familiar in the West. A smaller block has the old Egyptian game-board of 3 by 10 squares.

"Lastly, in the Roman age, a new site was adopted, near the old mound. A rubbish-hole there contained much broken glass, and one perfect glass flask which seems to be unique. From the shoulder to the base there stretch fourteen threads of glass inside.

Much has been illustrated by this search of Gerar; the position of the Philistine as corn-factor for Crete; the affair of Isaac and Rebekah there; the abundance of Midianite gold; the beginning of iron-working; the Assyrian connections; the Egyptian resistance to the Scythians; and the importance of the city as a manufacturing and trading centre, as well as a strategic base."

The objects found were on exhibition during July at University College, Gower Street. Amongst the most interesting were some sickle-flints with polished, serrated edges; several of them still retained the white limey plaster which was used to set them in wooden handles, for reaping (compare p. 266 of this number). We wish the School and its Director every success in their next season's campaign which, we learn from *Ancient Egypt*, will be conducted "on another tell in the south of Palestine, which promises to carry back the Egyptian connexion before the XVIIIth dynasty."

The view of the mound of Gerar, reproduced by kind permission of Sir Flinders Petrie, gives some idea of its size. The original, natural, surface is indicated by a broad belt of dark soil, visible on the right hand side of the photograph, about half-way down the cliff. The whole of the crescentic central part of the mound has been hollowed out by torrents since the formation of the artificial layers.

ROCK-SHELTER OF LA GENIÈRE

This rock-shelter is situated on the left-side of the valley of the Ain, about midway between Geneva and Lyons. Its excavation yielded amongst other less remarkable objects, a slab of rough limestone with the engraving of a bison, another of a reindeer, and the skeleton of a

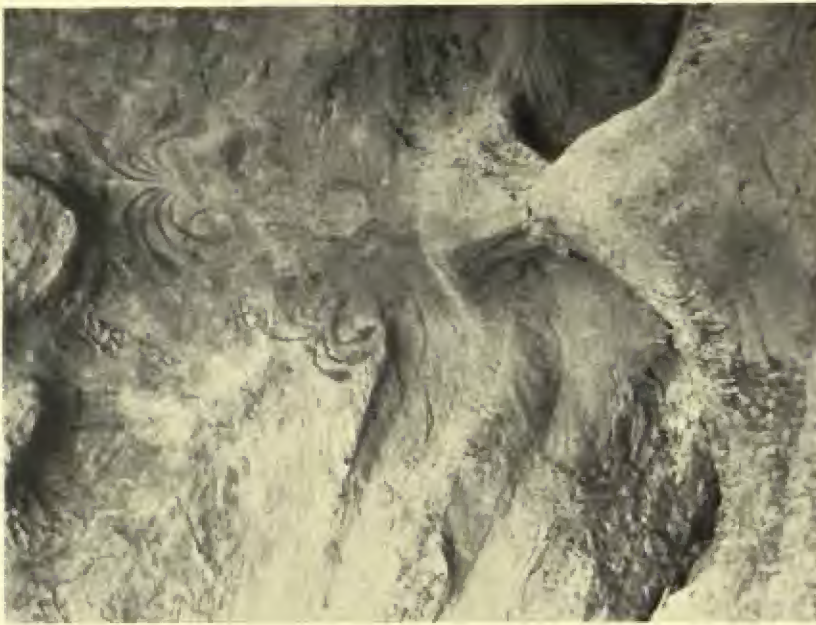
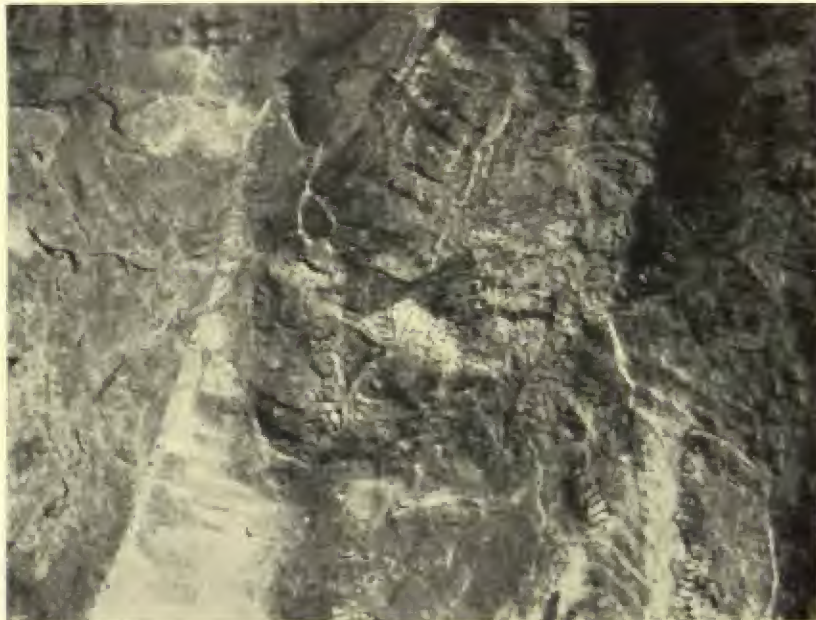
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child of 7 or 8 years of age. These finds are regarded as belonging to the end of the late palaeolithic period ("un faciès purement local de la fin du Magdalénien"). Perhaps the most remarkable feature is the resemblance, even down to the minutest details, of the bison to the painting of a bison in the cave of Font-de-Gaume, near Les Eyzies, in the Dordogne. We agree with the Abbé Breuil that it is difficult not to suppose both to have been the work of the same artist. Alternatively the engraving might be a "souvenir de pèlerinage." The Genière discovery confirms the late Magdalenian age of the Font-de-Gaume paintings, which had already been suggested on quite other grounds by the Abbé.

Of the skeleton, only the skull could be removed, and this was itself in a bad state of preservation. The lower jaw, however, was perfect. The skeleton clearly belongs to *Homo sapiens fossilis*, but has no resemblance to that of the modern French child. Though dolichocephalic, the skull does not belong to the type of Cro-Magnon, Chancelade or Neanderthal. Certain characteristics relate it to the race of Grimaldi, and the excavators conclude that the Genière child was a Magdalenian descendant of the Grimaldi stock which lived in the south of France during the Aurignacian period. Certain "negroid" features are compared with others observed in early neolithic skulls in Brittany (G. Hervé in *Bull. Soc. Anthr. Paris*, ser. 5, iv (1903), 432). Certain other features, particularly the teeth, recall the modern Australian native.

The flint implements are very interesting. Though clearly Magdalenian as a whole, they include a large number of pygmies. Now these are generally supposed to have been used for fishing, either as fish-hooks or harpoon-barbs,* and this supposition is strengthened by the rarity of animal bones in the rock-shelter. "These little implements," write the authors, "whether arrow-heads or fish-hooks, were used at the end of the palaeolithic period or the beginning of the neolithic, throughout every region of North Africa, from Egypt to Cape Blanco and from northern Tunisia to Lake Chad. Their presence in the rock-shelter of Genière is in our opinion proof of African, or Capsian influence." May we not associate the wide distribution of these pygmies (found also in India, Australia and South Africa) with the "negroid" or

* Similar flints are still used for fishing by the primitive peoples of Western Africa; see M. Laforgue, Quelques engins de pêche du néolithique inférieur du Sahara, *Bull. de la Soc. de Geogr. et d'Arch. de la prov. d'Oran*, xlv, 227, (figs. 5 and 7).



ROCK PAINTINGS—EN EZZAN, CENTRAL SAHARA
Prof. M. Mouchamp

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"Australoid" features of the skull of Genière, and perhaps therefore with one of the first great movements of dispersion of the human race?

MOROCCO

In the current number of *L'Anthropologie* is a paper by M. Paul Pallary on some prehistoric sites he has discovered in Morocco. For the most part these consist of flint-sites, which are extremely abundant and prolific. They are especially abundant in the valley of the Moulouia where the flints can be seen even from the train. In the Midelt district were found Levallois flakes and Mousterian points. Elsewhere tumuli and what seem to be the ruins of prehistoric stone-built villages were observed. In one place, near the Col de Tagnagneit, are two concentric circles of stones, the inner being 20 metres and the outer at least 100 metres in diameter.

It would be interesting to know whether rock-cut tombs of the Balearic type occur in North Africa. In Majorca these are found exclusively in a soft Pleistocene limestone which is easily worked and generally occurs near the coast. Similar tombs are found in Provence, in Sicily and in Eastern Mediterranean lands. In Majorca they are dated to the early Bronze Age by the discovery in them of bronze knives.

SAHARAN ROCK-PAINTINGS

During the Ice Age the Sahara must have been fertile and habitable. The conditions which produced an ice sheet over northern Europe must have caused rain to fall frequently over what is now the desert. That it continued habitable in later times is proved by the discovery of flint implements throughout it. But the existence of rock-paintings at a spot which is now almost entirely inaccessible, and which lies right in the heart of the desert, is of even greater importance. In Ezzan lies a few miles north of the Tropic of Cancer and east of longitude 10. The region today contains no animal life at all, and only one tree. It is in the least known portion of the Sahara, lying about half-way between Lake Chad and the Gulf of Tunis. The cave itself has been formed by water, and has been exposed to view by a fall of cliff. The floor is of rock, but there is a talus in front which, the discoverers inform us, might be excavated with good prospects of success. Close by is a spring of fresh water.

A full account of the site is published in the current number of *L'Anthropologie*, (xxxvi, 409-27), by Dr P. Durand and M.L. Lavanden.

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The paintings are described, from photographs, by the Abbé Breuil. Six photographs and one drawing are reproduced. We must refer our readers to Monsieur Breuil's detailed description to which we cannot do justice in a brief summary. There is evidence, from overlapping, of more than one period, but a skirted bowman with a heart-shaped head recalls the women, if such they be, of Cogul in eastern Spain, with which Monsieur Breuil compares it. There are several human figures of the double triangle type, with necks but no heads. One skirted figure is shown as running, with clumsy gait. One man is tailed and others are ithyphallic. The resemblance to the eastern Spanish designs are regarded by Monsieur Breuil as certain evidence of some connexion with that art. "Je ne crois pas qu'on puisse penser à une simple convergence fortuite."

Many animals are portrayed. Certain mastiffs, with their tails well up, resemble those on prehistoric,—that is, predynastic,—Egyptian plaques and knife-handles. They are also similar to those on Assyrian monuments, and an Asiatic origin is generally presumed. Some vegetable forms resemble those on early dynastic Egyptian vases. There are Oryx, bulls (probably wild) and horned sheep exactly similar to those of predynastic Egypt.

The relationships indicated are precisely such as might be expected in a region almost equidistant from Spain and the Nile Valley. Monsieur Breuil even hints at Bushman resemblances, and a hint from this quarter may mean much. Evidence of the date of the In Ezzan paintings is at present only indirect, and more than one period is certainly represented. So far as it goes the evidence suggests that some of the paintings are early neolithic; but in so remote a region the term 'neolithic' has little real meaning. It may however be remarked that there is other evidence of a cultural connexion between Egypt and Spain in the swallow-tailed arrowheads of the Fayum, which are found in Spain during the eneolithic period there (see fig. B, p. 332). A common origin in the central Sahara is by no means improbable; it is at any rate a good working hypothesis. When we remember the much earlier 'negroid' skeletons of Grimaldi, the Capsian (African) penetration of Spain, and the northern origin of the Bushmen; when we know that rock-paintings occur throughout Africa, in Ouenat and the Sudan, and that the northernmost Bushman paintings are found near lake Tanganyika, it will be seen that order is beginning to appear in the chaos of racial movements in this quarter of the world.

Finally, a word to our readers, whom we like to regard as potential



ROCK PAINTINGS—IN EZZAN, CENTRAL SAHARA

Pl. M. Mouchamps

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collaborators—and particularly to those in the Sudan. There must be in Darfur rock-paintings which await discovery. Such rock-paintings would provide a most valuable missing link in the chain uniting North and South Africa. Can anyone send us, for publication, photographs and descriptions of such?

We wish to express our sincere thanks to Monsieur Breuil for the loan of these photographs, from which plates were made. We wish also to thank the Editors of *L'Anthropologie*, of whom Monsieur Breuil is one, for permission to reproduce them again.

ABYSSINIAN MEGALITHS

Abyssinia remains almost unexplored even to this day. It is regarded by modern Europeans much in the same way as ancient Britain was regarded by the Romans in the days of Julius Caesar. Unfortunately for us, however, neither missionaries nor archaeologists existed in the Roman Empire; but future generations of Abyssinians will, we hope, be grateful for the pioneer work of Father Azais. Since 1922 he has been exploring the ancient remains of Abyssinia, and has discovered both dolmens and dolmen-idols ("statues-menhirs"). Near Saden there were more than a hundred and fifty tombs round the dolmen-idols, and this fact, and the discovery of a burial at the foot of a dolmen-idol, proves their funerary associations. In one instance a round tumulus 30 yards in diameter was surrounded by many dolmen-idols and other stones. A hint that the caves of southern Abyssinia may contain "many interesting things" suggests that there is more to come. We join, however, with Dr Verneau, one of the learned editors of *L'Anthropologie*, in expressing the hope that specialists, that is to say trained and experienced excavators, may be attached to any future expeditions. As Dr Verneau says, methodical excavations, carried out patiently and not rushed through in haste, are essential if light is to be thrown upon the ancient inhabitants of Ethiopia. But why cannot pioneers be content with the record of observations and the construction of plans? Such preliminary field-work is of far more value than sporadic digging by amateurs, and it does no harm, even if badly carried out. We would willingly exchange all Father Azais's reports for one or two carefully constructed plans of the dolmens and tumuli he has discovered. (*L'Anthropologie*, xxxvii, 223-6).

As an example of how to carry out such a voyage of exploration into archaeologically unexplored country, we would cite Mr Duncan

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Mackenzie's trip to Sardinia, made in company with Dr Ashby and the late Mr E. T. Newton, who did the plans. Mr Mackenzie's two papers (published in *Papers of the British School at Rome*, vols. v-vi) are still the standard work on the megalithic remains of Sardinia, though he did no digging whatever.

A very interesting and well illustrated account of these discoveries is published in *Art and Archaeology* for July-August (vol. xxiv). It is written by Father Romain Butin, Acting Director of the American School of Oriental Research in Jerusalem.

FRENCH EXPLORATION IN ASSYRIA

An expedition consisting of Father Poidebard, of Beirut University, and M. Maurice Dunand, of the Syrian Department of Archaeology, returned recently from a three months' reconnaissance in the country north-east of the Euphrates. The object of the journey was to verify on the ground the observations made by Father Poidebard in 1925 from an aeroplane. These related to the ancient road-system of the Upper Jazira. River-crossings, remains of Roman road-causeways, and tracks linking 'tells,' first discovered from the air, were to be authenticated, and further air-photographs obtained. In addition, the 'tells' of the region bounded by the Upper Khabur, the railway and the Irak frontier were to be examined; and trial-excavations made in Assyrian sites likely to repay future excavation.

With the co-operation of the Army of the Levant, excellent results were obtained. A fine series of air-photographs was obtained, and photographs were also taken on the ground. A large collection of Assyrian pottery was brought back, enabling the principal 'tells' and ancient roads of the region to be dated. A deep cutting was made in Tell Hamidi (40 miles north of Hassecheh), and prehistoric levels were reached. The remains of the citadel were found, and in the cemetery an intact grave was excavated.

A good deal of attention was given to Roman remains. Five new camps were discovered by aeroplane observation—three to the south of Nisibin, along the Jaghjagh, and two between Hassecheh and Sinjar, on the frontier of Severus, in Syrian territory. Three of the camps, invisible [as such?] on the ground, were spotted by means of their shadows when seen from the air, and were photographed. It is anticipated that air-photography will reveal much of the little-known Roman frontier between Palmyra and the Tigris. (*La Géographie*, p. 295).

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RECENT WORK IN GREEK LANDS

The excavations carried out by the French School of Classical Studies during the past year have revealed a good deal of interesting material. The work at Mallia in Crete, directed by M. Joly and assisted by M. Flacelières, succeeded in determining the extent of the palace which ran much further to the north than the excavators had expected. The region to the south of the central court was cleared and was found to consist of a long narrow suite of communicating rooms. The ordinary household pottery so abundant in the rest of the palace was very rare here, and in contrast painted sherds were numerous. They are of the L.M. I period (c. 1580-1450 B.C.), and the most frequent design is that of the spiral with a central dot. On the west side of the central court is a terrace which was obviously a sanctuary. In it were found a fine table for offerings and a sort of bench for holding cult-objects. To the north was found a large interior court with a length of 19 metres, and north of this again five store rooms which seem to mark the limit of the palace in this direction.

The excavation of the temple attributed to Zeus Thaulios at Pherae was continued last year. The most important discovery was that of a *favissa* about 11.50 metres south of the temple, containing ex-votos of bronze, belonging to the Archaic Period. A statuette of a warrior and cauldron handle in the form of a griffin's head were the most noteworthy of these objects. Numerous terracotta ex-votos representing female figures and practically all of the Archaic Period, were also found. From this, it would seem that the sanctuary must have belonged to a female deity and, in fact, since the inscriptions, on which M. Arvanitopoulos bases his attribution of the temple to Zeus Thaulios, were found quite far away, it may turn out that he was mistaken.

The German School also had a successful year's work. The excavations at Tiryns, interrupted by the war, were resumed last September. In the midst of the Mycenaean ruins on the citadel was found the sacrificial pit of a sanctuary with late Geometric and early Archaic objects, so that it would seem that the sanctuary of Hera must have been on the citadel. Part of the lower town, south of the citadel, was uncovered and the greatest epoch of construction here, as well as on the citadel, was the late Mycenaean. Several periods can be distinguished, and the town seems to have been built on a uniform system with parallel walls.

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At Samos, the most important result of this year's campaign by the German School under Herr Buschor, was the discovery of a prehistoric settlement immediately north of the great temple. In 1925, sherds of this period had already been found in the area between the façade of the temple and a point 150 metres eastward. The newly discovered settlement extends for a length of about 100 metres to the west of this area, but further excavation will be needed to show if this town had the great extent which may be concluded from the present finds. The oldest stratum shows houses of the so-called megaron type, arranged, for the most part, in complexes. The objects found here would seem to belong to the end of the early Cycladic Period, while various remains of other buildings in bad condition appear to date from the middle Cycladic Period. The thick circuit wall which was cut into by the north-west corner of the paved court, mentioned in the report last year as being under the foundations of the temple, belongs perhaps to the Mycenaean Period. Some rooms were built against this circuit wall while various houses with several rooms each, might be contemporary with it. Close to the north wall of the paved court was found a badly destroyed tomb mound which must originally have had a diameter of about 6 metres. Its construction in this spot probably presupposes the previous destruction of the town. The tomb-chamber contained remains of two burials and the funeral offerings consisted of late Mycenaean stirrup-vases, a three-handled pyxis, the serpentine pommel of a dagger, an ornament shaped like a rosette, and a silver bead. From the chamber a short dromos, closed by a wall, led out to a quadrangular niche. A great mass of sherds which yielded many whole pots was found in this prehistoric layer.

In the course of the exploratory campaign of 1924, the American School discovered the ruins of a prehistoric settlement on the hill called Tsoungiza, which rises above the west end of the village of Heraklion. The whole top of this mound was carefully investigated this year and a fairly extensive excavation was undertaken on a lower terrace on the north side of the hill. In both places, abundant remains of prehistoric settlement were brought to light; dwellings, graves, pottery and miscellaneous objects were found. On the summit of the hill, the foundations of several small houses of early Helladic date (3400-2100 B.C.), were laid bare. One of them, with fairly well-preserved plan, apparently consisting of a single room, contained 8 pithoi, standing on the floor, and 9 saddle querns or millstones. In an adjacent house 12 pithoi were found, one unusually large one being

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sunk deep in the floor. On the terrace the deposit lay in strata, representing the three stages of the Bronze Age. The deepest layers, from which only pottery was obtained, belong to the early Helladic Period. In the middle stratum the ruins of a house were encountered, together with characteristic potsherds of the middle Helladic Period (2100-1600 B.C.) In the upper levels, not far below the surface of the ground, were uncovered the stone foundations of several houses, mainly of the second late Helladic Period.

The complete excavation of the cave on the south side of the Tsoungiza Hill was carried out during November and December 1926. The cave was found to extend some 15 m. westward from the pit dug in the preceding year, widening to a breadth of about 6 m. and then gradually narrowing to 2.9 m. though its sides are by no means regular. The whole cavity was packed with earth, pieces of fallen *poros* and quantities of stone. Throughout this deposit neolithic potsherds were extremely abundant. Other finds were a dozen complete obsidian blades, a toothed implement of flint, a bevelled celt of black stone, a serpentine bead, terracotta buttons and beads, fragments of worked bone, and a button-shaped seal of whitish stone, bearing on one side a checker-board pattern marked with deeply incised lines, and on the other a character like a Δ , dotted at its centre. Animal bones were numerous, chiefly from small animals such as sheep and swine, but one huge joint must have belonged to a creature as large as a good-sized ox. Undoubtedly the most important relic, however, was a fragment of a thick skull, which, together with some other remnants of human bones, was found lying on hardpan at the deepest point of the cave. The fragment of a cranium, which preserves part of the longitudinal and occipital sutures, is, so far as is known, the earliest definite skeletal remains of man yet recovered in the Peloponnesos. (*American Journal of Archaeology*, XXXI, 218-25).

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

The sarcophagus of Queen Hetepheres at Giza (described in the last number of *ANTIQUITY*) has been found not to contain the queen's mummy. It is suggested that this was destroyed by the robbers who violated the original tomb at Dahshur; but that the truth was concealed from Cheops by the priests who dreaded his wrath. Otherwise it is hard to account for the trouble taken to conceal an empty sarcophagus. The concealed cavity contained an alabaster box 'divided into four compartments. It is stated that two of the compartments still contain a 'clear yellowish fluid' (*The Times*, 27 May); this has now been proved by analysis to consist of carbonate of soda dissolved in water! An authoritative account of the operations, by Dr Reisner, has been published as a special supplement to vol. xxv of the *Bulletin of the Museum of Fine Arts* (Boston). It contains 36 pages, and 23 photographic illustrations and costs 30 cents.



A small deposit of gold jewels has been found in the corner of a rock-cut tomb in Crete. The discovery was made by Mr E. J. Forsdyke of the British Museum, and communicated in a letter to *The Times* (8 June) by Sir Arthur Evans. Amongst the jewels was a gold signet ring 'engraved with an inscription in the earlier class of the advanced Minoan linear script.' This 'unique discovery' says Sir Arthur, 'opens out a new chapter in the history of Minoan writing.' The deposit dates from the 17th century B.C.



Mr D. Jenness, of the Victoria Memorial Museum, has been exploring the province of Wales, the westernmost portion of Alaska, facing Asia. He has found ruins belonging to four periods, all earlier

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than the discovery of Alaska by Europeans. Those of the second period agree exactly with the oldest ruins of Arctic Canada. There is no means of dating these discoveries but the oldest are conjectured to be at least 1000 or 1500 years old. (*L'Anthropologie*, xxxvii, 231-2).

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The reported discovery of carved chalk figurines at Spiennes in Belgium has proved false. The objects in question were made by an impudent forger called Lequeux. He was detected playing the same game in Morocco whither he seems to have fled when Belgium became too hot for him. He has recently been arrested for attempted tomb-robbing in a cemetery near Paris. (*L'Anthropologie*, xxxvii, 232).

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A neolithic flint-site exists on Cape Blanc-Nez, 7 miles south-west of Calais. It belongs to the period of Tardenois, and yields pygmy implements. The summit of the hill has a cap of Tertiary sand, and is yet another instance of the preference of those early neolithic peoples for sandy soil. A kitchen-midden site has long been known to exist at Wissant close by, and implements of the older palaeolithic period are found near the 'fossil quaternary cliff' of Sangatte. (*L'Anthropologie*, xxxvii, 226-7).

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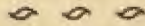
Mousterian remains have been found by M. Doumergue in the cave of Abd-el-Kader, province of Oran, Morocco. They are described in the Bulletin of the Society of Geography and Archaeology of Oran, vol. xlv.

o o o

At a recent meeting of the Institut Français L'Anthropologie, M. Vaufray gave an account of some recent research in the lands bordering on the western Mediterranean. It is now established that remains of both mammoth and woolly rhinoceros have been found in the cave of Cardamone, near Lecce, in Otranto, S. Italy. They belong to the upper palaeolithic period, and indicate that the climate of southern Italy was then a cold one. Other evidence shows that at the same time the Atlas region of North Africa had a severe climate. M. Vaufray described the meteorological conditions which would produce

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these results, and concluded with the suggestive remark that ' during the whole of the last glaciation the population of the Atlas region was but scanty, whereas the northern Sahara was thickly populated.'



It is reported that the Dutch excavations at Argos, interrupted by the war, are to be resumed shortly ; but we have no official confirmation of the report.



Stone Age burials have been found in the Altai by a Russian expedition led by Professor S. J. Rudenko. The bones were painted with ochre. Remains of the Bronze Age were also found. (*Nature*, 5 March).



The American expedition which is to excavate in Athens itself has raised the necessary 500,000 dollars ; it is stated by Dr Capps, Professor of Greek at Princeton University, that the American School of Archaeology in Athens will provide a further sum of 500,000 dollars to cover the cost of the work during the next two years.



The excavation of Pergamum in Asia Minor has been resumed by the Prussian State Museums, under the direction of Dr Theodore Wiegand. An arsenal was found, containing several hundred stone balls. The School of Medicine, where Galen taught, is to be excavated later on. (*Morning Post*, 24 June).



In 1918 the French Government obtained from the Ameer of Afghanistan a monopoly of the archaeological rights of that country for thirty years. In 1922 M. Foucher set out to explore its possibilities. He returned in 1925, and has just reported the results to the Academy. Little of interest seems to have been discovered and M. Foucher has small hope of finding " the great monuments " which one would have expected as the outcome of Bactrian civilization. (*Le Temps*, 15 May ; *The Times*, 18 May).

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The German excavations at Babylon, begun in 1899, were stopped in 1917. The objects found, packed in 500 cases, were fortunately preserved intact, and through the good offices of the late Miss Gertrude Bell, were recently sent to Berlin by the Iraq Government. They are now being examined there, and a preliminary statement by Professor Unger appears in *Forschungen und Fortschritte*. It is mainly concerned with the 900 graves which were opened and which are said to range from 2000 to 300 B.C. (*The Times*, 8 June).



Excavations have been carried out at Boubousta on the Haliacmon, in the foothills of the Pindos range. They have been directed by Mr Heurtley, Assistant-Director of the British School in Athens, and have revealed a settlement which dates from the period called late Helladic III (about 1400 B.C.), but which lasted into the Geometric period about 800 B.C.). 'Evidence thus seems to be forthcoming of the existence of a flourishing geometric painted style in the region from which the originators of the Greek geometric style are thought to have entered Greece.' (*Morning Post*, 29 June).



Referring to a note on the Huelva hoard (ANTIQUITY, I, 106) Mr Rickard writes to say that the find is said locally to have been made 'in the wreckage of an old vessel buried in the silt of the harbour.' He adds the interesting information that 'some of the copper ore in the district, at Palazuelos, contains tin, and might by concentration during smelting and refining, yield a bronze.'

Forthcoming Excavations

THE ROMAN WALL

We quote the following from the *Durham University Journal* for June 1927 :—

“ Mr F. G. Simpson hopes to recommence excavation on the line of Hadrian's Wall on 1 September.

“ Readers of Mr R. G. Collingwood's review of recent research on the Walls of Hadrian and Antoninus in the first issue of *Antiquity* (March 1927), will realize how the results of the Excavation Committee's work at AESICA in 1925 appear to have threatened the foundations of the “ working hypothesis ” put forward in 1922. The Committee is fully alive to the importance of continuing the work in the AESICA sector, and is already considering ways and means for its resumption. Nevertheless, it has decided that this summer it will be of more general service to conduct excavations at the Fort of AMBOGLANNA at Birdoswald, one and a half miles west of Gilsland. Permission to excavate has already been given by the landowner, Mr Irwin A. Wright, and the Haverfield Bequest Committee has made a grant of £50 towards the expenses.

“ It is generally considered that Birdoswald, when compared with the remaining fort-sites on the line of the Wall, offers possibilities which are second to none ; while in relation to the two Walls, one of turf and the other of stone, its position is unique.

“ This summer's work, therefore, should serve a double purpose. It should provide that varied experience for the research student which will ensure the successful development of Romano-British studies in this University. It should also advance our knowledge of the earliest Roman occupation of the site and help to resolve the complex of structures which at present baffles us.

“ In the Committee's programme there is also another item. At High House, within a mile west of Birdoswald, are the best-preserved remains of the Turf Wall. Thirty-two years have passed since the Cumberland Excavation Committee, under Haverfield's leadership, made the discovery which revolutionized the study of

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Hadrian's Wall. Of the members of that Committee, one only, Mrs Hesketh Hodgson, remains with us. To the present generation of students, a re-examination of the Turf Wall at the present juncture will be particularly instructive."

THE MOUND AT HARLOW, ESSEX

It is proposed to excavate this mound and an appeal for subscriptions has been issued, signed by Messrs. Miller Christy, F. W. Reader and R. E. M. Wheeler. The site seems most promising, and the names of those concerned is a sufficient guarantee that the excavations will be properly carried out. Mr Hazzledine Warren is acting as hon. treasurer. We quote the following notes (by Mr Miller Christy) from the leaflet circulated :—

"The Mound at Harlow is of a kind which must have been occupied by man from the very earliest times.

"It is a large low natural hillock of London Clay, about ten acres in extent and twenty-five feet high. It stands close to the railway-station in the broad flat-bottomed marshy valley of the river Stort and about two hundred yards from the river, which has evidently run on all sides of it at different geological periods. The mound rises from the level river-alluvium, which completely surrounds and isolates it ; and the blackness of this alluvium shows that it occupies the site of a former morass or swamp, which must often have been flooded in winter ; hence the easy defensibility of the mound in early times.

"The base of the mound is surrounded, just above the level of the alluvium, by traces of a ditch and bank. At its northern end, the mound is prolonged into a sort of platform, in which is a depression, above the level of the marsh, apparently once a pond for holding sweet water. The summit has, doubtless, also once been encircled by an entrenchment, but of this no trace is now visible ; for London Clay, when on a slope, is liable, after heavy rain, to ripple down hill, like treacle, so that any earthwork quickly disappears, though traces may often be found by digging.

"Near its southern end, the mound is crossed by a low embankment carrying the main Cambridge line of the L. and N.E. Railway. Here, too, it was approached formerly (according to the late Mr I. Chalkley Gould, F.S.A.) by a sunken trackway leading from the higher eastern escarpment of the river-valley, of which digging will probably reveal traces. This track was probably paved ; and from this,

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apparently, the mound got its fourteenth-century-name of Stanegrove-helle (meaning Stone-ditch Hill), now corrupted into Standing Groves.

"The mound must have been occupied at least as early as the Bronze Age ; for, on a recent visit, I picked up, close to it, a fragment of an urn of that period. I saw also burned earth, like that of which the ' Red-hills ' on the Essex coast are constructed, and fragments of pottery, like that met with in the ' Red-hills.'

"Coins of Cunobeline and Tasciovanus are recorded to have been found, either actually on or close to the mound.

"Evidences of occupation in Roman times abound in the immediate vicinity. The important road scarcely 300 yards to the east is almost certainly Roman. In 1819, workmen, digging into the mound are recorded to have ' discovered some very strong walls, which they were not able to penetrate.' Potsherds, fragments of Roman bricks, and *tesserae* are to be seen lying about on the surface. There have also been found, in or close to it, a small bronze head of Silenus, a large bronze fibula, and fragments of a cock and triton. A few months ago, I cleared out a Roman domestic rubbish-pit, exposed in the side of a sand-pit beside the road, obtaining several Roman pots and a quantity of fragments, all of the first century and all now in the museum at Colchester.

"In Saxon days, the mound was that on which the hundred-moot of the hundred of Harlow met ; and it is, doubtless, the ' hoo,' in the occupation of one Alfgar, mentioned in the will, dated 1045, of Thurstan, son of Wine."

As we go to press we have received a printed postcard from Mr Miller Christy which says :

"Digging, which began on the 3rd of August has already produced very satisfactory results.

"The foundations of an important house, apparently Roman, have been uncovered, together with abundant fragments of Roman brick and pottery ; also many loose *tesserae* of earthenware."

ELBA

A prehistoric cemetery has been found on the island of Elba, near Porto Ferraio. Excavations are in progress. (*Art and Archaeology*, xxiv, 47).

Reviews

THE SOCIAL AND ECONOMIC HISTORY OF THE ROMAN EMPIRE.

By M. ROSTOVTSSEFF. Oxford University Press. 1926. pp. xxvi, 695, 60 plates. 45s.

Professor Rostovtseff has written a great book ; not only one large in sheer physical bulk, or splendid in its appearance and its wealth of magnificent illustration, or massive in the amount of learning gathered into its pages and detailed in its admirable notes, but a great book in the proper sense of the word—great by its mastery over its materials and by the way in which an enormously complicated mass of information is subordinated to the development of a theme striking in its simplicity and dramatic in its presentation. Like all great historical books, this is one which can be read like a novel, and, when so read, grips the imagination with such force that the reader cannot lay it down.

The main subject is the process by which "a refined, delicate, highly aristocratic civilization," the civilization of the late Republic and the first phase of the Empire, "was gradually absorbed by the middle class and adapted to their standards and requirements," till, on the virtual extinction of the old aristocracy, the new middle class created a culture of its own, comparatively simple, elementary and materialistic in character ; then sets in a second movement, the collapse of this "bourgeois" civilization under the onslaught of a proletarian movement in the third century, till, by the time of Diocletian, the class-war has destroyed "the foundations of the economic, social, and intellectual life of the ancient world," and built up a new proletarian state "based on general ignorance, on compulsion and violence, on slavery and servility, on bribery and dishonesty." The aristocratic society of the Julio-Claudians was destroyed by the Emperors, notably Nero and the Flavians, in their remorseless persecution of the Senate and all it implied ; the bourgeois society of the Antonines, by the military anarchy of the late third century, in which the army, now recruited from the peasantry, and serving as a medium of expression to that hitherto inarticulate class, turned against the middle-class life of the towns and smashed it in an orgie of class-hatred.

In matters of detail, there is much here that is disputable ; but there is no doubt whatever that the outline of events was as the author describes it. Everyone accustomed to studying the chronology of the Roman Empire by reference to archaeological material is familiar with the distinction between the early "aristocratic," the central "bourgeois," and the late "proletarian" phases of culture ; and knows that the third phase has a peculiarly close connexion with the peasantry—a rural, not an urban, proletariat—which is found in the fourth century imposing its standards upon the general life of the time. More or less clearly, all archaeologists have arrived at some such doctrine ; and, so far, Professor Rostovtseff's main thesis states

What oft was felt, but ne'er so well express'd.

The reason why he has expressed it so well is that he feels it as a living reality. To a Russian, driven from his country by social revolution, the idea of a proletarian attack

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on civilized society, a class-war in which there are no victors and whose only result is to create a servile state "much simpler, much more primitive, infinitely more brutal" than the bourgeois capitalism that preceded it, is no mere historical legend; it is a vivid and frightful fact. And it is in the furnace of that fact that the author has fused his materials into a solid ingot of metal. As Grote's radicalism created his splendid picture of Athenian democracy, as Mommsen's Prussian idea of the State inspired his colossal statue of Julius Caesar, so, once more, political realities have in retrospect created political history. Dry-as-dust historians, who believe that all modern interests and party passions should be forgotten by the suppliant on entering the temple of Clio, may deplore it; but they cannot alter it; unless the past is seen in the light of the present, it cannot be seen at all. It can only be fumbled with.

Yet the dangers are obvious. To read one's own political passions into the politics of the past is certainly the only way of bringing the past to life; but one may endow it with a life too like that of the present. And this is a danger which Professor Rostovtseff has not, perhaps, wholly escaped. That the army, in the third century, did in fact destroy the "bourgeois" civilization of the towns and prepare the way for a new type of culture based on the villages, is true. But the author holds that the army not only did this, but meant to do it; that the peasantry had by this time, as a class, passed from a dull submissiveness to "a sharp feeling of envy and hatred towards the privileged classes," and that the army, acting as the weapon of these feelings, set itself up as the class-conscious protagonist in an explicit and organized class-war. He grants that the thesis is not easy to prove; and it cannot be said that his evidence for it is convincing. Indeed, he finds himself, on at least one crucial occasion, in conflict with his own sources, which ascribe to a pressing need for money certain measures quoted by him as due to class-hatred. The Emperors, acting as nominees of the army, certainly plundered the town-dwellers ruthlessly; but the evidence that class-consciousness, and not *auri sacra fames*, was at the bottom of it, seems inadequate. Class-consciousness, even in the modern world, is difficult to excite and difficult to maintain at fever-heat; impossible, it seems, without the accompaniment and stimulant of a flood of rhetoric. Today, this rhetoric stands as documentary evidence for the existence of the feeling; but the mere fact that Professor Rostovtseff has to infer the feeling in the main from the acts of the third-century army, shows that there was no literature of class-consciousness; and we would suggest that class-consciousness is largely a literary phenomenon, and that where its literature is not, it is not.

A similar danger attends the implication of the author's general terminology. Bourgeois, capitalist, proletariat, and other constantly recurring terms, are terms invented to describe highly-specialized features of modern economic life. They do not stand for eternal truths; they are "historical categories," and not one of them applies with absolute accuracy to the more or less corresponding facts of the Roman Empire. The result of their employment, used as they are without explicit warning, is to create in the reader's mind the illusion that the economic structure of the Roman world was composed of the same factors as that of our own, and that the relations between them were the same. Modern Europe and ancient Rome are identified, and the Empire of the third century passes imperceptibly into Bolshevik Russia. That is not wholly a fault; for there is a sense in which history repeats itself; but it never does so without a difference, and insufficient attention to the differences makes history unintelligible. For, if there was no essential difference between the Roman world and our own, why should the one have perished before the other came into being?

REVIEWS

On this problem, the problem of the causes for the decay of ancient civilization, the book closes. The terms of the problem are keenly and penetratingly felt, and the criticism of many current solutions is conclusive. But if, as it seems to be, the problem is insoluble, ought we not to ask whether it is a genuine problem? Was the so-called collapse of ancient civilization really a collapse at all?

Professor Rostovtseff paints a black enough picture of the late Empire. Servility and oppression, gradual impoverishment and equality only in subjection, and the utter loss of creative energy—these are the main features of fourth-century life. Yet there is, surely, a reverse side to the medal. The author himself notes, as a strange exception to the general rule, that in the field of religion "the creative power of the ancient world was still alive, as is shown by such momentous achievements as the creation of the Christian church, the adaptation of Christian theology to the mental level of the higher classes, the creation of a powerful Christian literature and of a new Christian art." And one cannot regard this as an isolated phenomenon. In architecture, for instance, Rivoira has pointed to the gradual and unbroken progress from the time of the early Empire down to the fourth century; certain qualities are lost, but others are gained; above all, there is a gain in pure constructional technique which, by the time we reach the Basilica of Constantine, has brought us to the verge of Gothic. In sculpture, again, it is true that the work of the first century was never again equalled in its own field; but when one looks at, for instance, the so-called "Diocletian" in the Capitoline Museum, one realizes that this brooding, inward-turned, art is no less creative, no less vigorous, no less free, than the fastidious and well-bred work of a more classical age. An "aristocratic," refined, sensitive, cruel, civilization has turned into a "democratic" civilization, coarser in taste, less sensitive, but more humane, profounder in spiritual insight; but creative always; creative now not of the elegancies dear to an aristocracy whose luxury is based on the most brutal inequality of wealth, and whose feelings of pity and terror are purged by the constant sight of gladiatorial massacres, but of the clumsier, cruder things that express the mind, the "proletarian" mind if you will, of a society that feels matter as the veil of spirit. The change from the one to the other is necessarily catastrophic; and when one looks at the new, its politics, its art, its religion, or its philosophy, from the standpoint of the old, one thinks of the change as a decline and fall, and imagines that the creative energies of the human mind are exhausted. *E pur si muove*; the change is not death, but life.

R. G. COLLINGWOOD.

THE CAMBRIDGE ANCIENT HISTORY. Volume 1 of Plates, prepared by C. T. SELTMAN, M.A. Cambridge University Press. 1927. 25s.*

The appearance of this volume gives an opportunity of calling our readers' attention to the progress of the History itself. Six volumes have now appeared. They cover the history of Europe and the Middle East from the earliest times to 301 B.C. The standard of scholarship is very high indeed. The work is divided into sections, each written by a specialist. The treatment is full, and there are maps and chronological tables. The information given is up-to-date and first hand. It is easy to criticize a great constructive achievement such as this; but in view of what has actually been accomplished, the critic must feel that his first duty is to congratulate editors, authors and publishers. After, thus humbly seconding the vote of thanks already accorded by

* The price of the first four volumes is 35s. each; volume five is 21s., and volume six 30s.

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acclamation, he may with an easier conscience discuss the scope and arrangement of the History.

As a work of reference it is invaluable. It is not too compressed; and when one turns to it for information about the events of a certain period one will usually find the supply adequate. It will seldom be necessary to dig deeper; but if it should be, the means of doing so is provided by the bibliographies. But an encyclopaedia is not a history. The arrangement is a compromise between the opposing, perhaps irreconcilable, claims of time, space and subject. There are breaches of continuity in the narrative even where development was in fact continuous. Well-documented periods are treated at great length; no doubt this is to some extent inevitable; but must the historian allow his artistic—constructive and selective—powers to be over-ruled by the demands of scientific encyclopaedism? There is a real danger that if this process continues much longer the writing of history will become a lost art or a performance before empty seats. Perhaps there will be two kinds of history books—those intended to be read and those to be consulted. Perhaps a current of fresh air, from some 'historical' Darwin, will winnow the chaff and lay bare the mechanism of human activities.

The volume of plates, 394 in number, necessarily reflects the arrangement of the volumes which it is designed to illustrate; but the student will welcome a corpus of ancient art such as has long been needed. It will be of even greater use to the archaeologist than to the historian, and it is complete in itself. It was a happy idea to publish illustrations thus in a separate form; one advantage of this method is that an adequate description of each can be given, and there is a great convenience in having these printed on the opposite page. All those who have had to do with illustrations will agree that Mr C. T. Seltman, the editor of this volume, has carried out a difficult task with success. Such technical blemishes as are evident are, for the most part, inevitable in a compilation of this kind. Not every museum, it seems, can take such good photographs as the British Museum; nor can the best results be expected when half-tones are printed upon ordinary paper. A certain smudginess results; but then art-paper is terribly heavy and expensive. Nevertheless we wish the authorities of the Louvre would re-photograph the Gebel-el-Arak knife-handle; that masterpiece of pre-dynastic Egyptian art appears more blurred each time it is reproduced. The Apollo of Veii (reproduced in the last number of *ANTIQUITY*) suffers from the curtailment of his stature to four inches; and we would gladly have sacrificed both the 'close-up' of his bust and the sarcophagus for the helmet showing him in the group designed by the artist. The prevailing fashion may allow a photographic view to be reduced to the size of four square inches—though, in the case of works of art, it is an insult to the artist; it may allow it on the grounds of space—that quantity is better than quality. But the editorial control should act independently of such secondary considerations. We emphasize this defect because the present volume suffers from it, and it is one that is generally overlooked or pardoned, though fatal to so many illustrated books. In our view, one large view or illustration is always preferable to two or more reduced beyond measure.

We must not, however, end on a note of criticism. The illustrations, with some exceptions, are admirably chosen. Amongst them are many supreme masterpieces, some of which are less familiar than they should be. From amongst those reproduced we mention the following, as examples of the rich fare provided:—The head of a Semite (p. 60; it seems almost incredible that of this object, "found by the American expedition to Bismya in Babylonia," it should have to be recorded that the "present locality [is] not known"); the famous IV-V Dynasty scribe of the Louvre (p. 82); the ivory and gold

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Cretan snake-goddess, now at Boston (p. 118); the Scythian bowman-vase of Kul Oba (p. 252), and other masterpieces of Graeco-Scythian workmanship; the stele of Aristion (p. 284); and the winged ibex, found in Armenia, which forms the handle of a silver vase in the Graeco-Persian style, which is now in the Louvre (p. 324).

THE BALEARICS AND THEIR PEOPLES. By FREDERICK CHAMBERLIN, LL.B., F.S.A. London: John Lane. 1927. pp. x, 261. 18s.

Mr Chamberlin's archaeological wares have been loudly advertised by articles in the English press, some accompanied by picturesque portraits of the writer, others by photographs of Minorcan monuments, as excellent as the statements they illustrated were surprising.

These devices are of course perfectly legitimate, and only too familiar, but it is very distasteful to find them employed in connexion with archaeology. In view of this publicity secured for the author's opinions—they have also been broadcast by the B.B.C.—and his very dogmatic attitude to those of other enquirers, including so competent an archaeologist as the late M. Émile Cartailhac, it is well that they should be examined.

So far as the early monuments of Majorca and Minorca are concerned, Mr Chamberlin deals almost exclusively with the *talayots* and the *taulas*. The *talayot* is a low tower, round or rectangular in plan and built of large dressed stones; the *taula* consists of a single stone 6–12 feet high which is placed upright and crowned by a horizontal stone to form a structure T shaped in section. The *taula* is surrounded at a distance of a few yards by a stone wall embodying large uprights and a doorway.

Each type of monument puzzles Mr Chamberlin very much. In connexion with them he claims to have "examine[d] the bibliography dealing with the monuments of every country and consult[ed] the living leading authorities" (p. 230). It is strange that his examination does not seem to have included the accounts of excavations of *talayots* in Majorca carried out within the last ten years by the Institut d'Estudis Catalans of Barcelona. Had it done so, much of his puzzlement might have been eased and he might have realized that the "closed" *talayot* is not as mysterious as he thinks. As it is, he says (p. 18) that "the problem of the *talayots* is today as if it had never been studied by anybody at any time."

Only one 'living leading authority' is quoted; (p. 217), "[the opinion] of so renowned a scholar as Sir Ernest A. Wallis Budge is of value—the greatest value that the world can offer,—After inspecting the photographs reproduced in this volume he immediately declared to me: 'It seems to me that you have found a new class of monument'; [why new? did not M. Cartailhac publish a large volume on them in 1892, profusely illustrated by photographs and plans?] 'and I have little doubt that the *talayots* are pyramids of a funereal nature, and that the *taulas* are altars for sacrifices or other funereal ceremonies.'"

This was courageous of Sir Ernest, but neither he nor Mr Chamberlin suggests how a "sacrifice" would be carried out on an altar perched on a single narrow support ten or twelve feet high (see plates 12–27). The same claim used to be made for dolmens; and these (like the celebrating priests) do seem to be 'in the air,' for Mr Chamberlin continues, "it is clear that archaeologists have found but two monuments to which the *talayot* can be compared—the nurbag (*i.e.*, the *nuraghi* of Sardinia) and the chambered cairns of Great Britain—and even these comparisons depended entirely upon the supposition that the *talayot* had a chamber and, in the case of the *nurbag*, an interior

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"staircase. As the *talayot* possesses neither of these features, it must follow that there "is in all the world no megalithic monument similar to the *talayot*"—why? Moreover Mr Chamberlin has devoted the previous nine pages to detailed descriptions of *talayots* possessing "chambers" and "tunnels to summit."

The mention of British chambered cairns is intriguing. If the book contained any reference to the elaborate Majorcan burial caves at San Vicente and elsewhere (described by M. Cartailhac), some parallel might have been drawn. Surely it cannot be that Mr Chamberlin, or one of his (unquoted) authorities, is confusing chambered cairns with the *brochs* of Scotland? These last (which are nowhere mentioned), have a superficial likeness to *talayots*; but why chambered cairns?

"Cartailhac, rivalling Dr Guillemard for originality, deems these *taulas* to be the "central pieces of a building, altogether rejecting the otherwise universal agreement then "and now that these stately, magnificent, truly awful structures were altars of some "description" (p. 221).

There is, in fact, no reason for rejecting this suggestion by M. Cartailhac that the T was a centre post from which radiated the roof beams of a large chamber. It is supported by many plans, some shewing supplementary pillars between the *taula* and the outer wall, and the same method of roofing still exists in the contemporary artificial caves of both islands (plans and sections of some of these also have been published by M. Cartailhac and by the Institut d'Estudis Catalans). The early islanders seem to have made a practice of reproducing the same structural features in their chambers above ground as below, for, as M. Cartailhac shews, the plan of the tombs known as *navetas* or *naus* reproduces that of the burial caves. "There are perhaps a dozen *talayots* and "no *naus* or *taulas* in Majorca," (p. 174)—actually *talayots* abound and *naus* (or *navetas*) do occur, while it is at least probable that excavation of some of the sites would reveal the existence of "truly awful" *taulas* among the many remains of buildings that surround the *talayots*.

Had Mr Chamberlin visited some of these *talayot* sites in the large island, including those excavated by the Institut, he might have noticed that the surrounding areas are thickly strewn with fragments of pottery, some easily recognizable as Roman, others as certainly native. This pottery, although Mr Chamberlin does not mention the word, is the chief key to the problem. Some of the native varieties have already been recorded by the Institut, but we shall have to wait for a forthcoming publication in Barcelona for an authoritative account of it as a whole. Bronze implements have also been found associated with *talayots* (and duly recorded) and give further definite dates. Briefly, it has been established that the culture with which the *talayots* are associated extends from at least 1000 B.C. to the end of the Roman occupation of Majorca, and—pace Mr Chamberlin—that the *talayots* were towers for residence or defence.

Although Mr Chamberlin has completely failed to grasp the essentials of the *talayot* and other problems, his energy has placed upon the map a number of unrecorded monuments in Minorca and given us descriptions of the accessible features of many others whose existence was already known; even the most hard hearted and pernicky reviewer cannot rob him of this achievement. But was it necessary to devote a whole chapter to pouring scorn on a recent writer who has mistaken a bull-ring built of weathered stone for a Roman amphitheatre?

Certainly this book contains things that are true and things that are new;—but, alas! the things that are true are not new, and the things that are new are not true.

However, sentences like the following are at least refreshing (the subject is the

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town of Mahon) :—" Many an old inhabitant who had passed his whole life in one house " had never seen a blind opposite ajar. But the place is changing. Quite a number of " the windows in all streets are now discovering their panes—partly, to be sure, only ; " but still somewhat, which shows that the leaven of modern life is beginning to work." W. J. HEMP.

RESEARCHES IN PREHISTORIC GALILEE. By F. TURVILLE PETRE, B.A., and a REPORT ON THE GALILEE SKULL. By Sir ARTHUR KEITH, F.R.S. pp. 119, 30 plates, 37 illustrations in text. Published by the British School of Archaeology in Jerusalem. 2 Hinde Street, W. 1. 1927. 42s.

The British School of Archaeology in Jerusalem was founded in 1920, and its inception is perhaps to be found in an idea propounded before the War, by the late Sir Charles Watson, who was then Chairman of the Palestine Exploration Fund, that the time had come for the establishment of some system by which students could be trained in Palestinian archaeology. Although the School has its headquarters in Jerusalem, it takes the whole of Palestine as its province. The present Chairman is Professor J. L. Myres, and the Director in Jerusalem is Mr J. W. Crowfoot.

There is no rivalry between the School and what may be considered the parent organization, the Palestine Exploration Fund. These bodies are, often in fact, in a position to help each other. Thus, the School uses the offices of the Fund in Hinde Street, and makes use of the services of its Assistant Secretary : on the other hand, at the present moment, the Director of the School, and the Assistant Director, Mr G. M. FitzGerald, are engaged in conducting the excavations which are now in progress on the western side of the Hill of Ophel in Jerusalem, for the Palestine Exploration Fund. It is probable that the two bodies, working separately, get more support from the public than a single combined body would do.

The book before us opens with a preface by Professor J. Garstang, who was, when it was written, Director of the School, as well as of the Department of Antiquities under the Government of Palestine. The operations in Galilee were under the direct charge of Mr Turville Petre, and the work in the field was carried out during 1925 and 1926.

The principal sites explored were two caves in the limestone rock ; one, the Mugharet-el-Emireh, in a bluff just outside the entrance to the ravine of the Wadi el Amud, and the other the Mugharet-el-Zuttiyeh in the same Wadi, a few hundred yards away. The Wadi in question opens out into the Plain of Genesareth, known to the Arabs as El-Ghuweir, on the north-west coast of the Sea of Galilee. In both caves flint implements of Mousterian technique were found ; the implements are admirably illustrated, and described. In both caves mineralized animal remains were found, associated with the palaeolithic flint implements. The animal remains are fully described by Miss Dorothea Bate ; they include fragments of bones of camel, rhinoceros, deer, gazelle, ibex, bison, horse, pig, hippopotamus, porcupine and other animals. Miss Bate remarks that the discovery of the bones of a rhinoceros in palaeolithic Palestine tends to do away with the difficulty found by Canon Tristram in identifying the Unicorn with this animal. Behemoth may be identified with the hippopotamus, and Miss Bate notes that one of these animals was killed near Damietta as recently as the year 1600, " since which time the northern limit of this animal's range has been pushed back to south of the First Cataract."

But the most interesting find was that of the now well-known Galilee skull. The

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fragments of this skull were found by Mr Turville Petre towards the bottom of the palaeolithic layer, at a depth of 2 metres below the modern floor level, towards the front of the cave Mugharet-el-Zuttiyeh. There was nothing in its position to suggest an intentional burial. "The bone itself is in a hard, highly mineralized state, extremely heavy and reddish in colour, in fact in every way similar to the other bone fragments found in the layer."

Sir Arthur Keith devotes more than fifty pages to a description and analysis of this skull. The greater part of his report is, of course, addressed to the expert; but there is much which the non-expert reader can study with profit. Sir Arthur states that "there can be no hesitation in assigning the person represented by the Galilee skull to the Neanderthal species of mankind and yet, as we shall see, there are details in which the Galilean type differs from the Neanderthal varieties which have been discovered in Europe hitherto." He considers the skull to be that of a woman. "This is the first time human remains of Moustierian date have been found outside the limits of Europe." He has no doubt as to the human status of the woman of Galilee, and thinks that she had reached the same intellectual plane as the aborigines of Australia. Those who desire to learn more about this most interesting human fragment may be referred to the report, which is very fully illustrated.

An appendix of a few pages gives an account of explorations in some caves in the neighbourhood of Lake Huleh, some fifteen miles to the north of the former sites. Generally the flints found here were Mesolithic. Pottery of early Iron Age, Bronze Age, I, II, and III, was also found. The potsherds were identified by Father H. Vincent, of the Ecole Biblique at Jerusalem.

In conclusion we must congratulate the British School on the admirable manner in which the volume has been edited and printed. The Council express their indebtedness to their honorary treasurer, Mr Robert Mond, for making it possible to publish this valuable report; type, paper and illustrations are alike excellent. C. F. CLOSE.

DUNNIDEER AND ITS TRIPLE FORTRESSES, By G. M. FRASER. W. Jolly and Sons Ltd., Aberdeen. 1927.

This little work of sixty-eight pages is less localized in its scope than its title might suggest. As regards the information concerning Dunnideer, however, it is singularly complete, and the "Mutual Improvement Society of the town of Inch" in Aberdeenshire were only justifying their titular function when they requested the author to reproduce a recent series of lectures on the subject in this form.

After dealing at some length with the anachronism, which has not hitherto received any notice, of which Shakespeare was guilty in *Macbeth* as regards the type of "fortress" existent in the time of the play, Mr Fraser proceeds to give a very readable description of a hilltop camp with earthen defences, a vitrified fort, and lastly a medieval ruin, all three of which crown the crest of the Hill of Dunnideer.

What might really be termed a separate essay on the process of artificial vitrification of forts in the north-east of Scotland in the late Celtic period will serve to clear up many obscure points of this knotty problem for Scottish as well as English readers.

Dr Fraser considers also the vexed question of the water-supply in hilltop camps, or "forts," as, for some reason, they are usually termed as soon as one crosses the Border. The considerable list of camps in the north-east of Scotland, the water-supply of which the author has traced to a particular well within the area, does not however help to

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elucidate the similar problem in the south of England, where no such wells are to be found save in one or two isolated examples.

When dealing with the races which preceded the early Iron Age, however, Dr Fraser is on less sure ground and certain of his inferences are open to question. Without specifying whether he refers to the Neolithic or the Bronze Age period he claims that the previous races were of a comparatively low type of civilization and were not attached to any particular place, but were in fact purely nomadic (p. 43). Again he refers to them (in this case generically as "Picts") as having been a people of "a low stage of culture." His primary reason for this assumption is that "one of their burial customs" was cremation burial within an urn, a method of burial which, it must be remembered, was common among the Romans at the highest stage of their culture, and is by no means rare among ourselves today. The second reason is that these earlier peoples had "reverence for standing stones." It would be a bigoted observer only, one would think, who could regard such a majestic example of civil engineering as Avebury circle and its attendant avenues and consider the builders as of "a low stage of culture." Were such an observer, however bigoted, to journey one mile to the north-west of the circle and examine the evidences of a relatively high stage of culture as exhibited by the excavations in the pre-Bronze-Age site of Windmill Hill (where it is not inherently improbable that the builders of Avebury lived) it is certain that his bigotry would depart from him. Mr Fraser claims further that the earlier races conferred no place-names upon any part of Scotland. Apart from the fact that it is quite impossible for any race to inhabit a country without utilizing place-names—however nomadic that race—there is no "proof" (the somewhat drastic word used by Mr Fraser) that they did not do so. The similar rarity of pre-Celtic names in the south of England might well be cited as an analogy. Subsequent races doubtless re-named most places and corrupted to their own use many more. To take but a single example, the great hill-top camp near Stockbridge is of early Iron Age date and was presumably called something by the race who built it. It appears in a Saxon charter of 976 by the Saxon name of Heanbyrig and is now known as Danebury. Finally, even Mr Fraser's claim that the art of fortification and incidentally of permanent dwelling was brought to Scotland by the race who built the turf-work on Dunnideer can hardly stand examination. Although he is careful to refer to the White Caterthun, the Brown Caterthun stands not far away, and the Brown Caterthun bears so strong a similarity, as the present reviewer observed three years ago, to the pre-Bronze Age site of Windmill Hill in Wiltshire as to render it practically certain that the two great enclosures were built by the same race, the structural peculiarities being unique and confined to that period. The fact that its present place-name includes a corruption of the Celtic word "Dun" need not, for the reason suggested above, be taken in any way as a "proof" of comparatively recent origin.

To the work under review is added an appendix on Shakespeare's anachronism referred to earlier, and the book terminates with a really excellent bibliography. Altogether it may be said that the district has received a valuable addition to its literature.

A. KEILLER.

ANCIENT CITIES AND MODERN TRIBES. By THOMAS GANN. London: Duckworth. 1926. 21s.

The lure and romance of a vanished civilization can easily be understood. Yucatan—that strange limestone plateau which juts out into the Gulf of Mexico—was once

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inhabited by people who could build lofty pyramids and temples ; but the Spanish Conquest, probably the most cruel and destructive ever recorded, annihilated every element of culture and substituted merely superstitious practices. The ruined Maya cities were inhabited only four centuries ago, and the language and writing could then have been learnt by any European ; but no one troubled to use the key now lost—perhaps irretrievably. Further, it is recorded that a certain bishop, Landa by name, collected and burnt in a single *auto da fé* all the native manuscripts which could be collected—"one of the most infamous acts ever committed by any human being" says Dr Gann. We agree, and regret all the more that Spain was never conquered by the Moors.

Dr Gann's book makes good reading. There is just enough neat archaeology to justify the present review, and more than enough of travel and adventure to hold the interest from start to finish. The author, too, has a good style, and a sense of humour—without which a sojourn in this part of Latin America would prove exasperating. That he is an enthusiast is evident ; who else could offer his body as a voluntary sacrifice to chiggers, mosquitos, beefworms, tabanidae flies and blood-sucking bats, to say nothing of the climate and hard living ! There must be some fascination in the Maya ruins which cannot be communicated by cold print and pictures. To those who are unfamiliar with them, they seem to be a dead end, and Maya art repellent in its ugliness. (But an individual judgment, based on copies of the originals, is of little value). Whatever we may think of the subject of the book, we have nothing but admiration for the pluck, determination and skill of those who are doing pioneer work out there—work whose scientific value is unquestionable.

The illustrations are well reproduced, but the figurines opposite p. 228 are too small to illustrate the points brought out in the text—the usual fault of excessive reduction, for which an author is not always responsible. The sketch-map on p. 18 has no scale and is inadequate. A large map is necessary to follow the author's route.

Dr Gann's book is a valuable anthropological record of existing conditions. He has a keen eye and, what is more, he records the essentials facts of his observations. His latest reports (published in the *Morning Post*) reveal important new discoveries in the country of the Santa Cruz Indians, and we shall eagerly look forward to his next book.

IRON IN ANTIQUITY. By J. NEWTON FRIEND, D.SC. London : Charles Griffin and co. ltd. 1926. pp. viii, 221, frontispiece and 16 figs. 10s. 6d.

The title of this book suggests that it may be a useful compendium of the information available about the use of iron in early times, but it cannot be said to fill the bill. From the author, who is evidently primarily a scientist, we might have expected a large fund of knowledge on the metallurgy of ancient iron by way of analyses, descriptions of furnaces and the like ; but such information as he provides is meagre in the extreme. Failing this he has attempted a historical survey of the use of iron in which he ranges at will from prehistoric iron down to the cut steel jewelry of the eighteenth century (hardly antiquity). The book is arranged in a totally disconnected manner. After preliminary chapters on the Stone and Bronze Ages, followed by others on 'Iron and the Language,' 'as Ornament,' and, 'as Currency,' (the last containing a long and irrelevant excursion into the subject of water-clocks, always of copper or bronze), he jumps to 'Iron in Europe' with long quotations from classical writers and others almost longer from Pope's *Iliad* and *Odyssey*. These and similar quotations from Macaulay

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under 'Iron and the Romans' and from the Sagas in 'Iron and the Vikings' read suspiciously like padding. The important Hallstatt and la Tène periods are dismissed in three pages; the iron age in Italy in a bare paragraph. The objects from Spanish finds, from the Danish moor-finds and those of the early Anglo-Saxon period are never mentioned. In succeeding chapters on iron in Egypt, Syria, Mesopotamia and still further east no attempt has been made to arrive at any chronological sequence, or to discuss in all its bearings the question of the origins of iron-working in the ancient world. It is evident throughout that the author has not the necessary equipment for his task and the scantiest acquaintance with the literature. Far more knowledge is to be obtained from Déchelette's *Manuel d'Archéologie*, the articles on 'Eisen' in Ebert's *Reallexikon der Vorgeschichte* or 'Fer' in Daremberg and Saglio's *Dictionnaire des Antiquités*. A work of reference in English comprising the knowledge of the subject obtained from excavations by English and Continental archaeologists would have been very welcome. This book fails as such and is not retrieved by a full index. When, to quote but two of the extraordinary statements, we find it stated that in spite of the discoveries of the Siret brothers and numerous others in the Iberian Peninsula, Spain, like Africa outside of Egypt, passed directly from stone to iron, and that the mirrors found in association with chariot-burials of the iron age served the same purpose as the mirror of the modern motor-car, the value of the book may be gauged at once.

E. THURLOW LEEDS.

ANCIENT EGYPTIAN METALLURGY. By Major H. GARLAND and Professor C. O. BANNISTER. London: Charles Griffin and Co. Ltd. 1927. pp. xi, 214, frontispiece and 113 figs. 10s. 6d.

Professor Bannister has indeed deserved well of students, both of the historical and scientific aspects of ancient Egyptian metallurgy, in undertaking the publication of the fruits of the practical experience reaped by the late Major Garland in his capacity as superintendent of the laboratories at the Citadel, Cairo. The result is a work which within quite a small compass contains a large mass of information, much of it of a highly technical nature, on the methods of metal-working, particularly that of bronze, practised by the ancient Egyptians. An introductory chapter giving a brief historical survey of the metals known and the sources from which they were derived is curiously marred by several misspellings, such as 'disuetude,' 'collossal,' 'Memphic' for Memphite, and 'Ptolomies' and 'Ptolomaic' on the same page as the same words correctly spelled. And surely it would have been safer to use the perfectly good English term 'masterpieces' than to fall into the schoolboy howler 'chefs d'oeuvres.' Since the greater part of the material considered under the bronze industry appears to consist unquestionably of late pieces, such as statuettes and the like from the xxvth dynasty or later, when bronze-casting had reached a high standard, iron struts cannot be considered strange when iron was in common use. A case for the earlier use of the same method would have been strengthened by furnishing authoritative dates for the specimens. The term, 'an early Egyptian bronze' (p. 39), conveys nothing to the archaeological student. Chapter and verse for the term 'early' were clearly desirable. Omission of references and dates elsewhere tend to lessen the force of the author's arguments. It is not quite clear whether he did or did not believe that open moulds were used for casting the earliest copper implements. Apparently not, as he states that the copper was too impure. But open moulds for flat axes and daggers are well known from other countries, where the copper employed contained as many impurities as the dagger of which an

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analysis is given on p. 34. The Egyptian flat axes, like many of their counterparts from other lands, often have one face slightly convex and the other flat, undoubtedly the result of using open moulds. The chapter, however, contains many interesting observations on methods of casting and lays stress on the fact that the early Egyptians were quite ignorant of the processes of raising, spinning, annealing or brazing. Casting was the only method employed apart from a little cold hammering, and flaws were remedied by pouring in molten metal. On these points the author speaks with the authority derived from a profound microscopical study (set out at length in chapter v) of the metals themselves, which has served to prove that the changes which would have taken place in the microstructure of the metal under those processes are never found before Graeco-Roman times, and very rarely then.

The question of the age of iron in Egypt is here raised afresh. The author rejects on experimental grounds the idea that the splendid statues and other works in hard stones, for instance of the ivth dynasty, could have been produced with copper or bronze tools, again backing his arguments by microscopical evidence. But the case he advances for so early a use of iron implements is not strengthened by the instances he adduces. The use of iron struts in statuettes in the xxvth dynasty only proves that by that time iron was recognized as a more suitable medium, not that a different method had not previously been employed. It is difficult to believe that, if iron has survived, e.g., at Defenneh, in the Delta, in the shape of iron spears and arrows of c. 600 B.C., all traces of the stout chisels which he postulates as necessary for stone-working, even as far back as the third millennium, should have been lost. Even the author would have hardly dared to assume that iron tools were in use in pre- and proto-dynastic times when vessels were made of crystal and even harder materials such as corundum. It does not seem unreasonable to suppose that the methods employed for the manufacture of such vessels could have been applied on a larger scale to large masses, undoubtedly a laborious but not an impossible task.

We meet with bronze weapons engraved with the royal titles of Kames (xvth dynasty) and Aah-hotep (xviii dynasty) and had iron been in common use in their time, it hardly consorts with the petulant demand by Rameses II for a long-promised iron sword from the Hittite king or with the special mention of a tribute of iron from Syria in the xixth dynasty (c. 1350 B.C.). The author is on surer ground in his chapter on metallography, where he demonstrates to the full the importance of microscopical examination of metallic antiquities in any case where doubt exists as to the technical processes or the composition of the metal employed. The work concludes with some pages of useful hints on the preservation and restoration of Egyptian metal objects.

E. THURLOW LEEDS.

WANDERINGS IN ROMAN BRITAIN. By ARTHUR WEIGALL. London: Thornton Butterworth. 1926. pp. 341, map, 17 plates, and 60 line-illustrations. 6s.

To criticize Mr Weigall's *Wanderings* from the point of view of a scholar would be to mistake completely the end he has in view, and the public he desires to reach; he does not profess to be a specialist, but only a compiler in whom the journalistic instinct is not repressed.

There are a few criticisms, however, which must be made in fairness both to Mr Weigall and his public, since, judging by the fact that the book has already attracted

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great attention and is now in its fourth impression, it is but reasonable to expect that there will be a second edition in which certain blemishes, which have no doubt occurred in the exigencies of daily newspaper writing, may be removed. Mr Weigall has already corrected some bad blunders which appeared in the articles, as for instance the confusion of Durobrivæ (Rochester, also Castor, in Northants), with Dubræ (Dover), and has modified some of his former misstatements, such as the assertion that Sorbiodunum (Old Sarum) "remained for over four centuries a great Roman town not less important than Venta (Winchester)." In reprinting, one or two small errors have crept in which must rather be laid at the door of the proof-reader than of the author; for example, on page 43, the dates of Tasciovanus should be from about 30 B.C. to 5 A.D., not 45 A.D., while "*calidarium*," on p. 300, should be "*caldarium*."

Without in the least blinding our eyes to the essentially "popular" nature of the book, we may be permitted to suggest that many needless newspaper vulgarisms might well have been eliminated. Some of them convey an entirely wrong impression; e.g. in speaking of a fine funerary urn at Letchworth (p. 95), he says that the Romans "often buried the ashes of their beloved dead in the soup-tureen or the salad-bowl or any handy pot or jar or glass decanter from the dining-room table." But perhaps his worst sin in this respect results from his efforts to carry that dangerous aid to knowledge, the modern parallel, too far. When we read of Friesians as "phlegmatic Dutchmen," other legionaries called Swiss, Tyrolese, Portuguese, etc., and the emperor Constantius described as a "Yugo-Slovak," it is time to call a halt. Mr Weigall's phrasing is equally loose in other matters; for instance, he speaks of the "Scotch rebellion" of 116 A.D., when he means the Pictish rising, and talks elsewhere of a legion being quartered in the *Prætorium*!

So much for the positive sins of commission; there are also some of omission, the most noticeable of which is the absence of any account of those great Romano-British potteries in whose work so much persistence of the Keltic strain is found—New Forest, Castor, and Upchurch, to say nothing of the imported *Terra Sigillata*. One is fully aware that in a book of this size, selection is necessary, but on the other hand, a whole chapter on the medieval dreams of Glastonbury is totally out of place.

M. PAUL DARE.

FLINTS: an illustrated manual of the Stone Age, for beginners [By REGINALD A. SMITH, Deputy Keeper of the Department of British and Medieval Antiquities at the British Museum]. Printed for the Trustees by John Johnson at the Oxford University Press. 1926. pp. 55, 32 illustrations. 6d.

Seldom has a better six-pennyworth been printed! Here is the answer to all those who ask (when perhaps a gem of prehistoric flint-work is being shown to them) "How do you know it is worked?" The question is sometimes disconcerting, and like most of its kind it cannot be answered in a few words; but to all such we shall in future reply—get this handbook. For the convenience of those who wish to do so at once, we add that it may be obtained by post from the Secretary of the British Museum or through any bookseller.

Explanations are given of all the common features of flint-fracture—the bulb of percussion, striking-platform, frost-chipping and the like;—of cores and flakes and their functions in the production of implements; and of natural curiosities such as iron-staining and gloss. We are glad that Mr Smith gives what is undoubtedly the correct explanation of the iron-spotting which is so common

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on some worked flints, namely that it is due to the formation and subsequent rusting of small mounds or crystals of iron. These have been observed on flints found in undisturbed brickearth, and, though somewhat similar marks may be produced by contact with horse-shoes or agricultural tools, such agents cannot deposit an iron crystal. The gloss peculiar to certain gravel deposits (Knowle Pit in Savernake Forest, Walker's Hill in Alton Priors, and Collingbourne Wood, all in Wilts) remains a mystery; but we suspect wind-blown dust or sand to be responsible. The somewhat similar polish on the edges of flint saws is not referred to. The explanation given on p. 266 of this number is perhaps worth noting in the next edition. The "simple test for borers" given on p. 30 is new to us and well worth attention. On p. 34 the writer confesses that he cannot suggest a use for flakes from small tortoise-cores. Some of the pygmies illustrated on p. 41 may have been intended as barbs for harpoons. A row of several was found in Yorkshire arranged at regular intervals as would have occurred if the wooden shaft had decayed.

There are some general notes on how to collect and label specimens, patination, types of celts and arrowheads, river-terraces, the importance of stratification and of accurate observation of finds, and a list of the principal public collections. This last item might well be expanded, and we commend the suggestion to the Museums Association, whose useful Directory, printed in 1911, has long been out of date and unobtainable.

DIE JÜNGERE STEINZEIT DER SCHWEIZ. By HANS REINERTH. Benno Filser, Augsburg. 1926. pp. 288, 95 figs., 8 maps. 30 marks.

URGESCHICHTE DER SCHWEIZ. By O. TSCHUMI. Von Huber & Co., Frauenfeld. pp. 192, 20 plates, 6 figs.

Almost every museum contains some "relics from the Swiss lake-dwellings"; nearly every book about early man figures a reconstructed pile-village. But these remains and reconstructions date from a time when archaeology and ethnography were alike immature. Since 1900, and especially since the war, much fresh work has been done by geologists, excavators and explorers that must revolutionize our views about prehistoric Switzerland and the life of its inhabitants. The two works before us present, for the first time, the results of modern research in a form serviceable alike to the specialist and the layman.

"The New Stone Age of Switzerland" is clear, succinct, well-written and printed in Roman type. Reinertth recapitulates in graphic style the realistic details derived from older investigators and their successors about the daily life of the lake-dwellers—the looms, their ovens, the very bread they ate—that lend the Stone Age of Switzerland its peculiar vividness and charm. He adds in an appendix the scientific names and sites of discovery of their plants and animals. But these details are here presented for the first time in a truly historical context.

The civilization of the pile-dwellings is depicted as the resultant of the interaction of two cultural streams conditioned by the changes of climate and vegetation attested by palaeontology and geology. The first current, characterized above all by celts made from hard river pebbles, came from the south-west. The second, distinguished by celts sawn out of blocks of softer rock, came immediately from the north-east. The pile-dwellers, instead of being fatherless invaders emerging mysteriously out of some nameless

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and unknown land, are thus connected with well-defined groups whose earlier history can be traced on the western Mediterranean coasts or on the upper Danube.

The reviewer has in the past doubted the reality or importance of Reinerth's western group. He takes this opportunity of disavowing his former scepticism. The western element is in fact attested by a number of traits, not all enumerated by Reinerth.

More revolutionary is the author's view of the pile-dwellings themselves. These stood, according to him, not over the open waters of the lakes but on the shore—a theory propounded independently by Vouga five years ago.*

It would be possible to criticize Reinerth's conclusions on points of detail. For instance, as in earlier and less mature works, he still insists on the form of the celts as vital, rather than the method of manufacture which, as he now recognizes, conditioned the form. Under the spell of this external typology he connects the sawn celts with their rectangular cross-section with the Scandinavian-Nordic series of flint celts that have indeed a similar section, but are manufactured by an entirely different method. Nor did the theory of pile-dwellings on the shore escape very searching and pertinent criticism at the Salzburg anthropological congress.

Still the book as a whole is a masterly and original contribution to our knowledge. No one can in future afford to write about early man or arrange a museum without reading it carefully. And if it make him tear up his stock drawings and smash his models of lake-villages, the Urgeschichtliches Institut of Tübingen will provide better and truer ones.

Those who want a cheaper but more extensive survey, may profitably read Tschumi's very objective book. It covers the whole period from palaeolithic to Roman times, but the picture lacks both the detail and the clear-cult outlines of Reinerth's. The best chapter is the last, where Tschumi opens up new ground in tentatively correlating popular legends with archaeological facts—the "Golden Age" with the post-glacial optimum of climate revealed by the geologists, or tales of dwarfs with the "pigmy" skeletons unearthed in a neolithic context.

V. GORDON CHILDE.

PFAHLBAUTEN: ZEHNTER BERICHT. By Dr D. VIOLLIER, Konservator K. SULZBERGER, Dr P. EMANUEL SCHERER, O.S.B., Prof. Dr O. SCHLAGINHAUFEN, Prof. Dr K. HESCHELER and Dr E. NEUWEILER. Zürich: Bureau der Antiquarischen Gesellschaft im Schweizerischen Landesmuseum in Zürich. 1924. pp. 120, 20 illustrations and 15 plates. 8 francs.

The new work done on the Swiss pile-dwellings during recent years, based on stratigraphical observations, is of the utmost importance to archaeologists. Dr Viollier, in a valuable introduction to this report, on "the present position of research on the Pile-dwellings of Switzerland," while deploring the lack of method in the earlier investigations, which too often resulted only in the stuffing of museum cases and the accumulation of "interesting" private collections, ably champions the cause of modern scientific research. His own work in east Switzerland, with that of Vouga in Lake Neuchâtel and Reinerth and Schmidt elsewhere, has contributed largely to the establishment of a permanent scheme of relative chronology; and while the centuries immediately preceding the period of the earliest pile-dwellings in Switzerland are still "long and obscure," this report brings much new knowledge to bear upon the problem of the

* M. Vouga's conclusions will be given in his forthcoming article in *ANTIQUITY*. Ed.

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collapse of the pile-dwellings during that other transition phase between the Bronze and Iron Ages.

Who were the pile-dwelling people, and where did they come from? There appears still to be no satisfactory answer to the question, although the first workers were not in the least daunted by the difficulties of the problem. We are not told whence the elements of neolithic civilization, which appears already well developed in the earliest pile-dwellings, penetrated into Switzerland, but one suspects that the author looks towards the south or west, rather than to the Danubian civilization, for the source.

Until recently it was commonly held that the lake-villages were erected in the water, the present-day exposed positions of most of the neolithic stations of Lake Neuchâtel being ascribed to the artificial lowering of the lake level between the years 1880 and 1888. But apart from the practical difficulties involved in sinking thousands of piles, some of them 10 metres long, in water, and the dangers of storms and high waves, the nature of the material (e.g. the numerous objects of wood) preserved in the neolithic layers shows that the dwellings could not have stood in the water. The Neolithic and Bronze Ages were marked by long and severe drought, and the level of the lakes must have been considerably lower than today. Gams and Nordhagen have shown this; and Vouga supports it from detailed observations on the deposits around Lake Neuchâtel. We are given a picture of the inhabitants following the retreating shores, sometimes, as Weber has shown, for hundreds of metres, though not without occasional minor retrogressions.

Most of the late Bronze Age stations are situated, today, further out in the water; but while Viollier says they were still erected on the lake-shore, Vouga (*L'Anthropologie*, xxxiii, 1923) thinks that, in Neuchâtel at least, the stations were placed in the open lake. The statement that the type of settlement, from being strung out along the shore, becomes, in the Bronze Age, a compact village making use of the exposed and dried-up shores for agriculture, is significant in its possible relation to the evolution of the "valley village" with its common fields. A rise in the level of the latter during the first Iron Age, consequent upon a deterioration of climate, is held to account for the desertion of the pile-dwellings.

An analysis of the structural differences between the two types of settlement, Packwerkbauten (platforms) and Pfahlbauten (pile-dwellings), follows. The former type, better known examples of which exist in south Germany, occurs only in bogs and peat deposits. They are not exclusively neolithic, for an important dwelling of the platform type, excavated in 1923 in the Riesi, belongs to the late Bronze or even the early Iron Age (p. 73). A general account of the material cultures of the lake-dwellings concludes the first section (A) of this report.

Section B, which takes up 60 pages, consists of an inventory of the swamps and lake-settlements of east and central Switzerland, with a bibliography of every station and an account of recent excavations carried out on several: e.g., Thayngen-Weiher (neolithic), Hausersee-Ossingen (neolithic), Greifensee-Storen (neolithic) and Zürichsee-Alpenguai (Bronze Age). The last-named, excavated mainly in 1919, is treated in pages 44-54 and plates II-XI. The conclusions reached by Dr Viollier are very important for those who would see in the collapse of the lake-dwellings a clue to the series of "invasions" which reached Britain during the first half of the first millennium B.C. The final desertion of the settlement took place about the middle of the first Iron Age, about 800 B.C., "or perhaps even later." Evidence is cited to prove this overlap. The date of certain objects of the Italian Iron Age, found in the Alpenguai village, is known, and helps to fix the absolute chronology. Not only does red and

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black painted ware of Hallstatt type occur, but some thistle-headed pins (*à tête de pavot*) were found to be of iron, and this metal was also used as filling for certain grooved wire bracelets of bronze. The finding of a "bird-vase" of a well-known type (pl. VII, 4) is interesting as indicating links with Illyria.

Bronzes include winged axes of the usual Swiss type, razors, socketed gauges and chisels, tanged knives, sickles, spear-heads, fish hooks, buttons, horse-bits, bowls and the customary large numbers of pins, but no daggers and only two portions of a sword blade. It may be that, since the settlement appears to have been abandoned more or less voluntarily, the occupiers took with them their most precious possessions, particularly their swords. The numbers of bronze tools were in any case comparatively small, especially in the latest layers.

An account of "the Anthropological Finds of the Swiss Pile-dwellings" by Professor Schlaginhaufen, includes detailed measurements of all the known skulls, with illustrations and a valuable bibliography. Finally, Prof. Hescheler analyses the fauna and Dr Neuweiler the flora of both periods of inhabitation of the lakes.

The fifteen excellent plates show examples of bronzes, woodwork, pottery (with details of different kinds of ornamentation) moulds and other finds.

This book deserves attention for its careful summary of our existing knowledge of the pile-dwelling cultures but particularly for its useful attempt to throw light on some of the obscure problems connected with the rise and fall of those cultures.

ESTYN EVANS.

AZ AVRKORI MŰPAR MAGYARORSZÁGON (DAS KUNSTGEWERBE DER AVARENZEIT IN UNGARN). By NÁNDOR FETICH. In Magyar with a German translation. Királyi Magyar Egyetemi Nyomda, Budapest. 1926. pp. 66, 7 pls. and 22 figs. 14.80 marks.

This, the first of a new series of publications issuing from the National Hungarian Museum and intended to make better known the riches of Hungarian antiquities, deals with questions of the Hunnish and Avar cultures. The larger part of the work is devoted to a discussion of a peculiar feature, translated as *Zahnschnitt* in the German text, which appears commonly in the zoomorphic ornament of the Avar period of the 6th and 7th centuries A.D. That it is not to be sought in any legacy from the Hunnish period is demonstrated by the marked divergence of the Hunnish ornamental motives, which are also as short-lived as the occupation of Hungary by their users. In further search for an origin for this peculiar element of the Avar decoration the case for a loan from the west-Germanic canon known as Salin's Style II is first examined. The author sets out the arguments for this source in detail, but discards it in favour of a derivation from Scythic art. Here he follows the line adopted by Strykowski, Rostovtseff and others in maintaining the important influences of Scythic motives on the art of western Europe in the early centuries of our era. This line runs counter to the provincial Roman origin of Teutonic ornament advanced by Salin and supported by other Scandinavian scholars. Here we meet again the struggle of East and West and we can only quote the conclusions of the author of the present work. "Among the barbaric peoples of the Migration period there can be no talk of a specific national art. A purely Scythic, Sarmatic, Hunnish, or Avar artistic school did not exist. The artistic products of these peoples were a nomad art, blended from various elements." So in the West there is no question of unmixed oriental motives. The migrations brought much, as

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many features of Salin's Style II in particular clearly prove, but the northern Teutonic races equally borrowed ideas from all their neighbours. Just as the Huns are shown to have been influenced in part by Byzantine motives, so the Teutonic peoples derived much from the Roman world, with which they still had commercial relations. If the late Anglo-Saxon smith of the Wallingford sword could translate the lion of St. Mark among the four Christian emblems on the pommel—of which the three others are clearly recognizable—into an interlaced monster akin to some Irish zoomorphs, there is nothing strange in the idea that his ancestors should have equally transmogrified an earlier motive borrowed from Roman provincial sources, even though the line of change may have been influenced by ideas to which the East also contributed.

The work is printed in good, clear type and is well illustrated. The references to illustrations on page 59, l. 9, should be Nr. 8, and on page 60 the first two plate-numbers in brackets should be 12 instead of 11. These are errors taken over from the original Magyar text.

E. THURLOW LEEDS.

THE CREDIBILITY OF HERODOTUS' ACCOUNT OF EGYPT. By W. SPIEGELBERG. Translated by A. M. Blackman. Blackwell. 1927. pp. 40, 2 pl. 2s. 6d.

Poor Herodotus ! The very title of the pamphlet is an insult ; we do not talk of the credibility of Polybius, and his great predecessor was quite as careful, with his precision as to what he heard, and how much he believed of it. An early British traveller in China was just as likely to be mistaken. Happily Dr Spiegelberg takes a reasonable view and considers the sources of information, and the difficulty of such a traveller getting at the truth. The rendering of the times and conditions of writing the incomparable Second Book is excellent, and vouched for by Dr Spiegelberg's long studies in the Demotic period. But in one point it is regrettable that neither author nor translator has done justice, when referring to an inversion of the order of history. Dr Apostolides pointed out in 1898 that there had been a reversal in the order of two rolls, sections 100-123 and 124-136 (*L'Hellénisme Egyptien*). When these sections are transposed the order of history is faultless. I further pointed out (*Jour. Hellen. Stud.* 28, 275) that there were breaks of subject all through the second book at about the same length of interval, and that the Egyptian book consisted of twelve rolls, varying from 207 to 236 lines of the Greek of Prof. Sayce's edition. Somewhat the same size of roll can be traced in other books.

FLINDERS PETRIE.

FLYING FOR AIR-SURVEY PHOTOGRAPHY. By F. TYMMS, M.C., A.F.R.A.C.S. and Flight Lieutenant C. PORRI, R.A.F., Members of the Air Survey Committee. H.M. Stationery Office. 1927. 2s.

We need hardly apologize for noticing this handbook, though it only concerns archaeology indirectly. (We do not intend to *review* it). Its scope is indicated by the title ; and the contents will show that the taking of air-photographs is not quite as simple and easy as it sometimes appears. When these are required for the purpose of constructing or correcting a map, the art of air-photography becomes exceedingly difficult. We can thoroughly recommend this authoritative handbook to all who contemplate taking air-photographs.

H.M.



S.O.

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Antiquity

A Quarterly Review of Archæology

VOL. I No. IV

DECEMBER 1927

Editorial Notes

WITH this number *ANTIQUITY* completes its first year. The steady increase in circulation assures us that our venture is appreciated. On our side we shall maintain the present standard, both of matter and illustration. We have the satisfaction of knowing that our Review has made a place of its own among the journals of the day, and that the frankness of opinion which is one of its features is approved. It will be our endeavour in the coming years to justify the promises we have made. We take this opportunity of thanking, once and for all, our direct subscribers—the rock upon which *ANTIQUITY* is founded. Their direct support is essential for purely financial reasons, and it enables us to maintain an absolutely independent attitude.

A title-page, contents and index to the volume are included in this number. Subscribers who wish to have binding cases will be supplied by the printer, John Bellows, to whom application should be made. Further particulars will be found on the inner page of the cover.

This opportunity is also taken to remind readers that subscriptions to *ANTIQUITY* for 1928 will be due next March, when a form of renewal will be issued.

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Our readers have responded with most gratifying liberality to the appeal inserted in the last number on behalf of the excavations at UR. Contributions amounting to nearly £300 have been received towards the British Museum share of the costs of the Joint Expedition and sufficient funds are now in sight to ensure a full season's work. Those who have contributed to this most important undertaking may feel assured that their help has been deeply appreciated both by the Director and Trustees of the British Museum, and by members of the excavating staff at Ur, who can now carry out this season's programme unhampered by financial worry. We shall keep our readers fully informed of the results, as soon as these become available.

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The first stage of the STONEHENGE campaign has been completed, and the land on which the aerodrome stands has been acquired by the National Trust. The work of demolition has already begun, and the contractors have undertaken to remove the eyesore within a year. The next stage, however, has opened with a renewed appeal to complete the purchase of the threatened land. That the threat is no imaginary one is shown by several facts. One is the existence of the odious café. Another is the revelation that, had not one of the options been secured when it was (by the public-spirited action of an individual), the land would have been acquired for a *factory*! The Avenue field, immediately opposite Stonehenge, still remains outside the fold of the National Trust, and the time is getting short. Subscriptions are urgently needed (National Trust, 7 Buckingham Palace Gardens, S.W. 1). We assure our readers that we should not ask for their support if the need were not really urgent, and, speaking with full knowledge of what is being done, we can tell them that it is, and that every shilling will be acceptable.

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The excavation of WOODHENGE has been completed by Captain and Mrs Cunnington, who read a paper at the British Association Meeting at Leeds (6 September). It was published in full in the *Wiltshire Gazette* (Devizes, 8 September), illustrated by a large plan. The conclusions reached with regard to the exact date of Woodhenge were based on the pottery found, but, after seeing the pottery, we

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cannot possibly accept the date assigned to it by Mrs Cunningham. The result will be published in book form, so that an opportunity of criticism will arise later.

Perhaps an apology may be needed for referring again to GLOZEL. We do so, however, for the benefit of those who may not see the European papers. Since our last number appeared there has been quite a storm. It began with a report delivered by M. Dussaud to a meeting of the Academy at Paris, held behind closed doors. M. Dussaud made accusations of forgery, based upon his study of the inscribed clay tablets. The gist of his report was published, however, in the press; and a newspaper controversy developed. The affair assumed such proportions that the Government intervened and sequestered the site and the 'finds'. Monsieur Herriot appointed a Commission to investigate, and no further work may be carried out except by them or under their supervision. Just before this, another Commission had been appointed by the International Institute of Anthropology and Archaeology. This International Commission is digging at Glozel as we go to press; Miss Garrod is the British representative.

For the benefit of the daily press, both here and abroad, we state the relative order of certain events. GLOZEL was first publicly denounced as a forgery in the March and June numbers of ANTIQUITY. In July M. Vayson de Pradenne published the indictment referred to in our last number (p. 260); and on 16 September M. Dussaud entered the lists with his Academy report. In being actually the first to warn our readers and the rest of the world of this mare's nest, we may claim to have even exceeded the undertaking we gave in our first number. Although the paper by M. Vayson de Pradenne appeared soon after our own, he formed his opinion quite independently; neither of us was aware of the other's writings or existence until the end of July last. M. Dussaud's opinions have recently been published in the form of a pamphlet. ('Autour des Inscriptions de Glozel,' par René Dussaud, Librairie Armand Colin, 103 Boulevard S. Michel, Paris. Pp. 57). This should be read in conjunction with M. Vayson's articles in 'Les tablettes d'Avignon' (1 October) and in the *Bulletin de la Soc. Préh. française* (September).

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AIR-PHOTOGRAPHY continues to provide sensational discoveries. The remarkable circles near Dorchester (Oxon), reproduced on the plates accompanying the note in this number (p. 469), were spotted by the pilot and observer who were taking some practice photographs there. Although outside the area to be covered, they went out of their way to include the circles, suspecting that they would be of archaeological interest. The results fully justified their enterprise; they are the first-fruits of the instructions issued recently by the Air Council, encouraging the selection of archaeological sites for photographic exercises. This concession was made to a deputation received by the Colonial Secretary and the Air Minister, which included the Presidents of the Royal Geographical Society and of the Society of Antiquaries of London. All archaeologists will be grateful to the Minister for sanctioning such an arrangement as this, which will most certainly yield important new discoveries without involving additional expenditure of any kind whatever. All that is required now is for a few more enthusiasts to do what no one on the ground can do—that is, look out for, and photograph some more of these sites revealed by crops. This can best be done in May and June. The Thames valley between Oxford and Wallingford, especially the middle portion near Dorchester, is certain to contain many more; they were even observed on the ground by the late Professor Haverfield. Another dry year like 1921 is due again about 1930 or 1931 and should produce a bumper harvest of 'crop-sites'—if not of crops!

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The new arrangement applies abroad as well as at home. That again is excellent, for in no part of the world is there more scope for archaeological air-photography than in the Middle East, where the new art was first put into practice. As we write these words a letter comes from Squadron-Leader Insall, v.c., the discoverer of Woodhenge, who is now stationed in Iraq. There in the desert he has been making discoveries which our readers will hear about—and see—in the next number of ANTIQUITY. He has visited and photographed the 'Works of the Old Men' in the basalt country, described by Flight-Lieutenant Maitland in our June number; and at the time of writing was hoping for an opportunity of further research and photography in Iraq itself.

PLATE I



OULED MANSOUR FROM THE SOUTH-WEST

Pl. M. W. Hilton-Simpson

facing p. 389

Algerian Hill-forts of today

by M. W. HILTON-SIMPSON

IT is not easy to compare the existing hill-top villages of Algeria with the prehistoric settlements of Britain before the Roman invasion.

The writer cannot claim any profound knowledge of British archaeology, but seven winters spent among the Shawiya Berbers of the Aures mountains in south-east Algeria have enabled him to observe modern life in that country, and to form opinions on the origins of its customs. The extent to which that life may serve to illustrate the mode of existence of our forbears in pre-Roman times must be left to the consideration of those more familiar with the pre-history of Britain.

The mountainous massif of the Aures, less than one hundred miles square, lies on the fringe of the Sahara between that desert and the central Algerian plateau. From Biskra, a few miles to the south-west, tourists annually gaze with admiration upon the glories of the setting sun, reflected from the barren and precipitous slopes of the mountains. The country is difficult of access, even now that roads have begun to penetrate it from the north. Within its forbidding frontiers¹—natural fortress-walls of rock—the ancient Berber race has from time immemorial lived its life less affected by outer influences than in any other part of Algeria.

This paper is mainly concerned with the villages of the Aures hills, to understand which we must consider the individual dwellings which compose them.

The human habitations of Algeria may be said to be roughly divided into five categories; the worsted tent of the desert nomads, the house of mud-brick (reminiscent of Pharaohnic times) so characteristic of the Saharan oases, the grass-shelter—known as 'gourbi'—to be found in the north, the cliff-dwelling, consisting merely of a walled-up cleft in the natural face of a rock, and the

¹ For geographical details see Hilton-Simpson, 'Influence of its geography on the people of the Aures massif, Algeria', *Geographical Journal*, lix, 19.

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flat-roofed hut built of untrimmed stones roughly held together by means of a 'mortar' composed of mud. This last is a feature of the hill-top villages now described.

There seems to me a connexion between the stone hut and the cliff-dwelling, a sort of evolution from the cavern to the house. To this evolution I have referred elsewhere.² If such a connexion, or evolution, exists it scarcely affects the modern hill-top village of the Aures; the walled-up cleft, palaeolithic in its simplicity, should be the subject of a separate paper.

The Shawiya hut in its simplest form consists of a rectangular edifice of unhewn stones, collected locally and united with mud, 'bonding timbers' of rough juniper logs being often built horizontally into the walls to give the building a certain amount of stability. Roofs are flat and consist of a thick layer of mud laid upon laths of oleander branch or palm mid-rib supported by rafters of juniper or date-palm. In all but the smallest of dwellings (in which rafters can be found long enough to span securely the space between their walls), these rafters are themselves supported by one or more posts of juniper or palm trunk, crowned by capitals of the same material, in the centre line of the building.

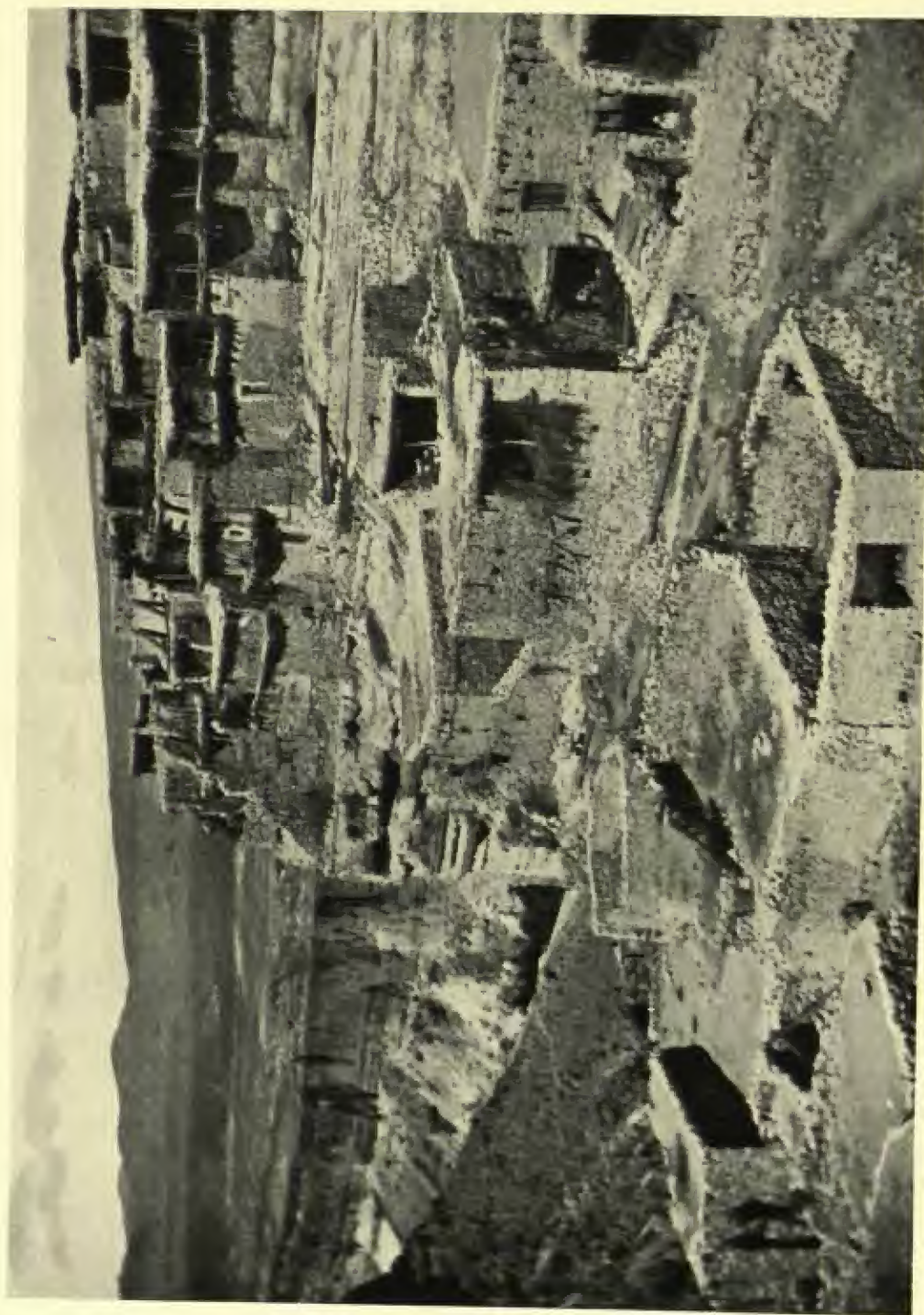
A poor family occupying a small hut usually sleeps upon a raised platform of sticks constructed across one end of the building, their few sheep, goats and fowls spending the night beneath them and thus, by their natural heat, protecting their owners against the cold of winter in the Aures highlands. It is, perhaps, needless to point out how much or how little—beyond heat—these animals and fowls contribute to the comfort of those who sleep above them. Those of us who live in Shawiya houses know; those who have not done so can easily imagine!

Such, in its simplest form, is the unit of which a Shawiya village is composed.

The villages invariably occupy the best positions for defence that the neighbourhood affords, and the geography of the Aures (described in some detail in the *Geographical Journal*, already referred to) provides innumerable sites almost impregnable to a foe armed with anything less modern than artillery. The rocky valleys of the massif's paltry mountain torrents are always very steep-sided and sometimes, as in the Rasira cañon, mere precipitous chasms in the centre of a wider

² *Geographical Journal*, lix, 24.

PLATE II



OULED MANSOUR FROM THE SOUTH-EAST
showing houses on edge of cliff
Ph. M. W. Hilton-Simpson

ALGERIAN HILL-FORTS OF TODAY

vale,—chasms cleft in the course of ages by the swift-flowing streams themselves. The junction between a main valley or cañon and the now dry bed of a tributary stream provides an ideal position for defence, and the Shawiya have made the most of the terrain with which nature has provided them.

In one district, that of Ouled Mansour, the lip of the Rasira ravine is fringed with hamlets clinging like eyries to its barren rocks, and often from three to four hundred feet above their gardens beside the stream.

At first glance it may appear that such scenery and that of, say, a southern English landscape have little in common and that therefore life in a village of the Aures and in one of pre-Roman Britain can have so little relation that no comparison between the two can be possible. But is this really so?

It seems to me that both Shawiya and ancient Briton each chose for his village the most defensible site which his local geography allowed him. Geography was kinder to the Berber, that is all; the south-eastern Briton had to make the best of his area; and in the days of primitive weapons a position upon the meanest eminence put the defender in the place of the 'top dog' and greatly increased the difficulties of the attack.

Many of us have cause to remember the importance even under modern conditions of gaining or holding the most insignificant of the Flanders 'ridges' or 'hills'. The principle underlying the choice of a village-site must have been identical in the case of the Berber and the southern Briton, and though, of course, for the construction of their houses different materials were employed—stone in the Aures, where the Berber could not excavate a dwelling in the solid rock, and Mother Earth or wattle-and-daub in England—each used the material nearest to hand. It appears, therefore, that conditions of life in the Aures must have been (and indeed are) very similar to those prevailing in even the least mountainous parts of early Britain.

When I reflect upon the 'cliff castles'³ of the coasts of Cornwall, Wales, western Scotland and Ireland I am driven to the conclusion that life in those castles must have been almost identical with that lived by the Shawiya today, or, at least, until less than a century ago. Their defensive positions must have been so nearly alike that the only outstanding difference lies in the fact that whereas the Briton sometimes

³ A. Hadrian Allcroft, *Earthwork of England*, 49 sqq.

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used earth for his fortifications the Shawiya, having no earth upon his rocky promontory, uses his superabundant stones to shield him from his foes.

Having broadly described the general situation of modern Shawiya settlements and suggested that a study of them may possibly throw some light upon the conditions of life in ancient Britain I will take, for description in fuller detail, the village of Ouled Mansour in the Rasira cañon.

The Rasira stream, which varies from the merest brook in the height of summer to a roaring torrent in the early spring, flows south-westwards from the snows of the northern Aures to disappear in the vast wilderness of the Sahara a little to the east of Biskra. Throughout the latter part of its passage it has carved for itself—as with a gigantic plough—a deep furrow in the centre of a stony valley between two ranges of hills.

Ouled Mansour (plate 1) is built upon the flat rocky surface of the apex formed by the junction of this Rasira cañon and the precipitous valley of a lesser and tributary stream, the latter now rarely blessed with even a trickle of water. The village overlooks its narrow belt of date groves, fields, and gardens which fringe the stream four hundred feet below it. It is rendered unapproachable by precipitous cliffs on either flank of the spur, and its only vulnerable point is the base of the triangle formed by the rocky apex of the spur, upon what we may term—for want of a better expression—its 'land' side. This is defended by a lofty wall of stone—in reality the back of a number of its dwellings—which spans the spur from cliff to cliff and is penetrated by but one narrow gateway, a path easily held by few against many.

The back walls of the houses flanking the spur rise straight from the edge of the cliff, admitting of no passage around the outside of the settlement. The outer walls contain of course no doors, and are penetrated only by a few totally inaccessible 'perforations' which serve as ventilators rather than as windows, in our sense of the word. (Plate II). Indeed, so abruptly do the walls of Shawiya huts rise from the brink of the precipice on which they stand, that I have, in several villages, observed these walls of stone actually resting upon stout logs which spanned crevices in the rock below. It is obvious that villages situated like this must be restricted in their superficial area; the farther back from the apex of the triangle that the dwellings are erected, the wider—and so the less defensible by a small force—must be the base of that triangle, its only vulnerable side. This has led the village to expand

PLATE III



OULED MANSOUR
Meeting-place, showing single gateway of village
PW, M. W. Hilton-Simpson

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upwards, as its population increased, by means of the simple expedient of increasing the height of the cottage walls and using the roof of the original hut (flat, as we have seen) as the floor of an upper storey. When a family possesses more than one room in such a building, it usually occupies the upper chamber, which is reached by a sloping palm trunk, roughly hewn to form steps, the animals being kept in the 'ground floor' apartment; a slightly less unpleasant arrangement than that customary in a simple one-roomed hut. Over-crowding, however, causes the village to become so noisome and pestiferous as the hot-weather approaches that in the spring its inhabitants usually take to adjacent caverns.

Additional accommodation is acquired by bridging the narrow tortuous lanes between the houses with rafters and building upon these; so that a settlement such as Ouled Mansour becomes, to all intents and purposes, one large building of one or two storeys rather than a small hamlet of individual huts. Indeed some 'villages' of the eastern Aures are in reality nothing more than defensible store-houses, used for the storage of their cereal and date crops by Shawiya tribes which, in that district, are more or less nomadic. Such villages are only fully occupied in winter when their pastoral inhabitants can find sufficient grazing for their flocks in the immediate vicinity.

There are three approaches to the village of Ouled Mansour. The easiest lies across the valley, in which the Rasira cañon is but a cleft, and brings the traveller to the easily defensible gateway in the rear wall of the village; this route is practicable for mule transport. From the bed of the river a very narrow track, passable by mules in single file, gradually ascends the steep slope of the tributary ravine (which lies to the south-east) to reach the lip of that ravine behind the village itself and to bring the traveller to the solitary gate in its wall. (Plate III). But this track must be regarded as impassable to a hostile force, for, as faintly shown in our illustration (plate I), it passes directly beneath the cliff upon which the village stands, so that would-be intruders, attempting to use it, could easily be annihilated by showers of stones hurled or merely dropped even by the women and children in the huts above them.

From the main Rasira valley a narrow zig-zag path, much resembling a flight of steps, winds up the very knife-edge of the spur. Its altitude at the summit (400 feet) demands a steady head and its ascent a healthy heart in anyone who attempts to negotiate it. At best it can only accommodate wayfarers in single file and, at the top, the

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traveller must worm his way through a tunnel of natural rock to find himself upon the level apex of the spur on which the village stands. The impossibility of assault by means of such a path is obvious. Indeed it seems almost incredible that the women of Ouled Mansour should daily wend their weary way up such a precipitous track, bearing on their backs heavy goatskins full of water from the stream and bulky bundles of fuel wood from their gardens beneath ; yet they do this and actually seem to prefer this approach to the longer mule-path leading to the gate.

The settlement described contains all the salient features of a typical Shawiya village but, of course, geographical conditions vary in the Aures and some sites are less suitable for defence. For example Menaa, built upon a rocky knoll in the midst of a basin formed by the junction of two considerable streams, must (as plate iv shows) almost be regarded as an 'open town' when compared with such a fortress as Ouled Mansour.

Many villages are situated upon a rocky peninsula connected only by a narrow and lofty isthmus with some adjacent mountain. Such positions are very strong and have been favourites with the Berbers since the days when Sallust described Rome's struggle with Jugurtha.

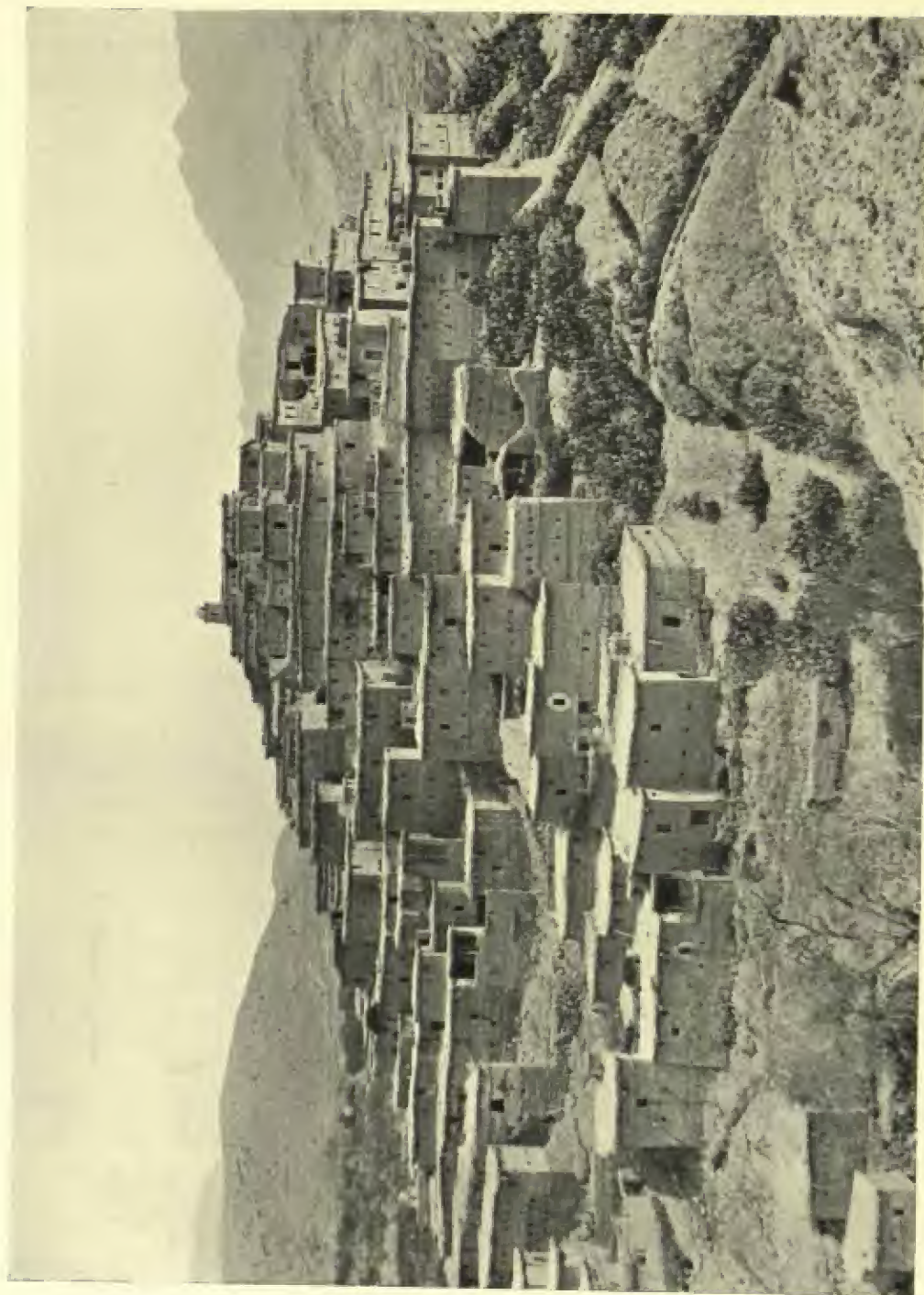
One Shawiya hill-top settlement so far exceeds in inaccessibility all the many others in which I have lived that it may be briefly described.

The remains of the village of Djemina stand upon a lofty bluff, the summit of which is roughly triangular. The photograph (plate v), taken from the south, shows the apex crowned by the ruins of huts.

The ruins are inhabited only by the occupants of its numerous bee-hives and by a few goats. For just as in Britain, when Rome had established law and order in the land, people began to descend from their strongholds and to live in open villages scattered over the lower ground, so in Algeria the coming of Latin rule as represented by the French is slowly causing the Shawiya to desert the eyries upon their rocky crags ; indeed some scattered dwellings in quite open positions can be seen just above the palm groves in the illustration of Ouled Mansour.

The bluff is separated by the narrowest of chasms, a mere slit cut by the stream which flows through it, from a range of cliffs of about equal height—shown on the left of the photograph—of which the bluff must once have formed a spur. But although a huge pillar of rock, having fallen away from the cliff, leans against the summit, thus causing

PLATE IV



MENAA FROM THE WEST
P. M. W. HILTON-STAPTON

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the stream to flow through a natural tunnel, the bluff itself is quite unapproachable from the cliff edge. All its three sides are absolutely sheer. Beside the leaning pillar there exists a vertical crevice in the wall; up this crevice (or 'chimney') some barefooted Shawiya mountaineer, with cat-like agility, once climbed and attached to the summit of the bluff a rope of plaited halfa-grass, allowing its end to trail down the crevice as an aid to others in repeating his climb up the sheer and sometimes over-hanging rock.

By means of this rope the younger and more active men can, with difficulty, reach the village. These, with the aid of stout cords of halfa, haul up the aged, the infirm, the women and children, sheep and goats, to a projecting platform of logs built for the purpose. This done, and the rope in the crevice drawn up, the inhabitants of Djemina are completely cut off from the world; absolutely defended against any foe not provided with the most modern instruments of war.

I have never seen a village site which, for its grandeur, impressed me more, nor one which, with the deep green of the date-palms beneath it contrasting with the yellow hues of the sunlit cliffs behind them, surpassed it in rugged beauty. Not only do the villages of the Aures delight the traveller's eye by reason of their wild and picturesque surroundings, but they afford him an interesting glimpse of the conditions of life in Algeria in the far distant past. The characteristic features of 'peninsular' and 'spur' villages as well as that of Djemina inevitably recall the words of Sallust⁴ when he described the taking of Jugurtha's treasure-house on the Moroccan frontier about half a century before Christ; approximately at the time when Britain first felt the touch of Roman influence. The relevant passage, as translated by Pollard, is as follows:—

'There rose amid the surrounding plain a rocky mountain, broad enough at the summit for a fort of moderate size, and reaching to an immense height. A single narrow approach was left; all the rest was as precipitous naturally as if labour and design had been employed to form it. . . . The path used by the garrison was extremely narrow, with a sheer descent on either side.'

So strikingly did the villages of the Aures remind me of Sallust's words that, when reading a paper on that country before the Royal Geographical Society,⁵ I attempted to illustrate them by means of

⁴ *Jugurthine War*, xcii.

⁵ *Geographical Journal*, l.c.

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slides depicting hill-settlements in which I had lived. Indeed, I believe that any future visitor to the Shawiya country who carries with him Sallust's narrative of the taking of Jugurtha's fort will find, when standing beneath many modern Berber hamlets, that it will perhaps reveal to him conditions of warfare in Roman and pre-Roman times more vividly than any phase of such life has been revealed to him before.

The existing arts and crafts, manners and customs of the Shawiya Berbers are very ancient and, therefore, must surely throw light upon those of the Mediterranean world of far distant days enabling us eventually to show that modern Shawiya culture dates back, at least, to pre-Roman times. The geographical isolation of their country is largely responsible for this state of affairs, but there has been (until the French pacified the remoter areas of Algeria) another contributory cause—namely the ever-present imminence of war. I do not mean war on the grand scale, as waged by Rome against Jugurtha, but the far lesser 'affairs' such as have constantly recurred throughout North Africa and which would undoubtedly recur again were European rule to be removed.

From time immemorial struggles have been the rule rather than the exception. The Berber of the Aures has had to combat the Arab of the plains, who ever coveted—and still covets—the produce of his more fertile fields; within the massif itself Shawiya tribe has ever been at variance with Shawiya tribe—village with village, even family with family.

The conflict between Berber and Arab originated in the natural hatred of the free men of the hills for their would-be conquerors of alien race; probably the internal bickerings of the Aures nearly all arose from blood feuds, initiated by some murderous crime of one family against another. However that may be, with warrior blood flowing in their veins for countless centuries, it is scarcely to be wondered at that the natives of North Africa have shown themselves to be soldiers of the highest quality from the time of Hannibal until quite recent times.

Until their natural instincts were turned to the best account by the discipline introduced by European officers, the tactics of the Berbers have been those of the 'light armed' as opposed to the 'hoplite'; of Hannibal's famous Numidian cavalry rather than of the chivalry of medieval Europe. Their warfare took the form of spasmodic raids rather than of organized campaigns culminating in

PLATE V



THE PINNACLE ON WHICH DJEMINA STANDS
Pl. M. W. Hilton-Simpson

facing p. 396

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a decisive battle. Moreover, the numbers engaged on either side must certainly have been small, owing to the numerical weakness of the tribes or villages concerned. This must have been the case even in inter-racial conflicts—Arab versus Berber—for mutual distrust would preclude the formation of any considerable force on either side.

It will be apparent that the defensive positions chosen by the Shawiya, which I have endeavoured to describe, are ideal for protection against a mere raid. In a prolonged campaign the very strength of the eyries perched so far above the stream must in a few days of strife become a source of great weakness. The villages, easily defensible in themselves, are usually totally dependent for their water upon the stream, or springs adjacent to it, hundreds of feet below. It is true that a few hill-top villages are blessed with springs so near to them as to be easily reached in times of war without undue exposure to the water-carriers, who, in most cases, would be obliged to descend the precipitous tracks from their villages in single file; according to Sallust Jugurtha's stronghold was so provided, and was thus enabled to withstand a protracted siege by the trained legionaries of Rome, equipped with a formidable siege-train. In most Shawiya villages water must be fought for, to cover a sortie, in the event of any prolonged attack; for I have never seen any systematic attempt to store water other than in the goatskins in which it is still carried up by the women. These tend to leak, and moreover the water becomes undrinkable in a very short space of time, especially in hot weather.

This lack of water storage, in a country thoroughly accustomed to a state of war, has always been a mystery to me; I can only conclude that desultory raids (productive, no doubt, of high feats of valour) have been met by equal forces (tribal or village) and have succeeded or failed at once, and that serious or prolonged campaigns can never have been usual in the Aures. The constant menace of hostilities, which would commence without the slightest warning, seems to account for the apparent idleness of the male population of a modern Shawiya settlement and, indeed, of that of the menfolk of a desert oasis.

The Shawiya entrusts his flock to a professional herdsman (who works for several masters) or to his own young children, for grazing on the hillside. Much, though by no means all, of the work in the gardens is carried out by women. The majority of the men seem to spend most of their time idling in the village itself, a fact which usually rouses the indignation of such few tourists as penetrate the hills. These very idlers appear to be the remnants of that garrison which must

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have been indispensable to every Shawiya settlement in the past, and I am tempted to ask the indignant tourist whether he could care to see the men of our own garrisons scattered over the country in pursuit of civil occupations only to be called upon to defend him when the enemy had already struck his first blow.

It necessarily follows that, in a country liable to sudden outbreaks of war, each Shawiya village was, and had to be, as nearly self-supporting as it was possible to make it ; it is so to this day. Of course certain commodities had to be sought outside the limits of the hills, and parties of men still join forces to seek them with their pack-mules ; but brigandage has been known in the mountains until post-war years so that, even now, no Shawiya takes the road totally unarmed, be his weapon merely a cudgel.

To provide his home with the necessities of life the Berber husbandman cultivates with the greatest care every scrap of irrigable soil adjacent to his settlement, employing a neat system of miniature canals and dividing their meagre waters by means of ingenious and very archaic methods of time measurement which I have described in detail elsewhere.⁶ In some districts, such as at Menaa, a fairly broad basin at the junction of two streams provides him with a sufficient terrain and an admirable soil ; here he can, and does, show his qualities as a farmer, qualities which he probably possessed in some degree even before the arrival of the Phoenicians along the African coast.⁷ In less favoured regions he has been forced to construct 'terrace fields' upon slopes of barren rock wherein to plant his crops, vegetables, fruit trees or date-palms.

In addition to the gardens near his village the Berber usually sows with cereals any patch of soil to be found high upon his mountain slopes, which he hopes may be watered by the all too scanty rainfall of the country.

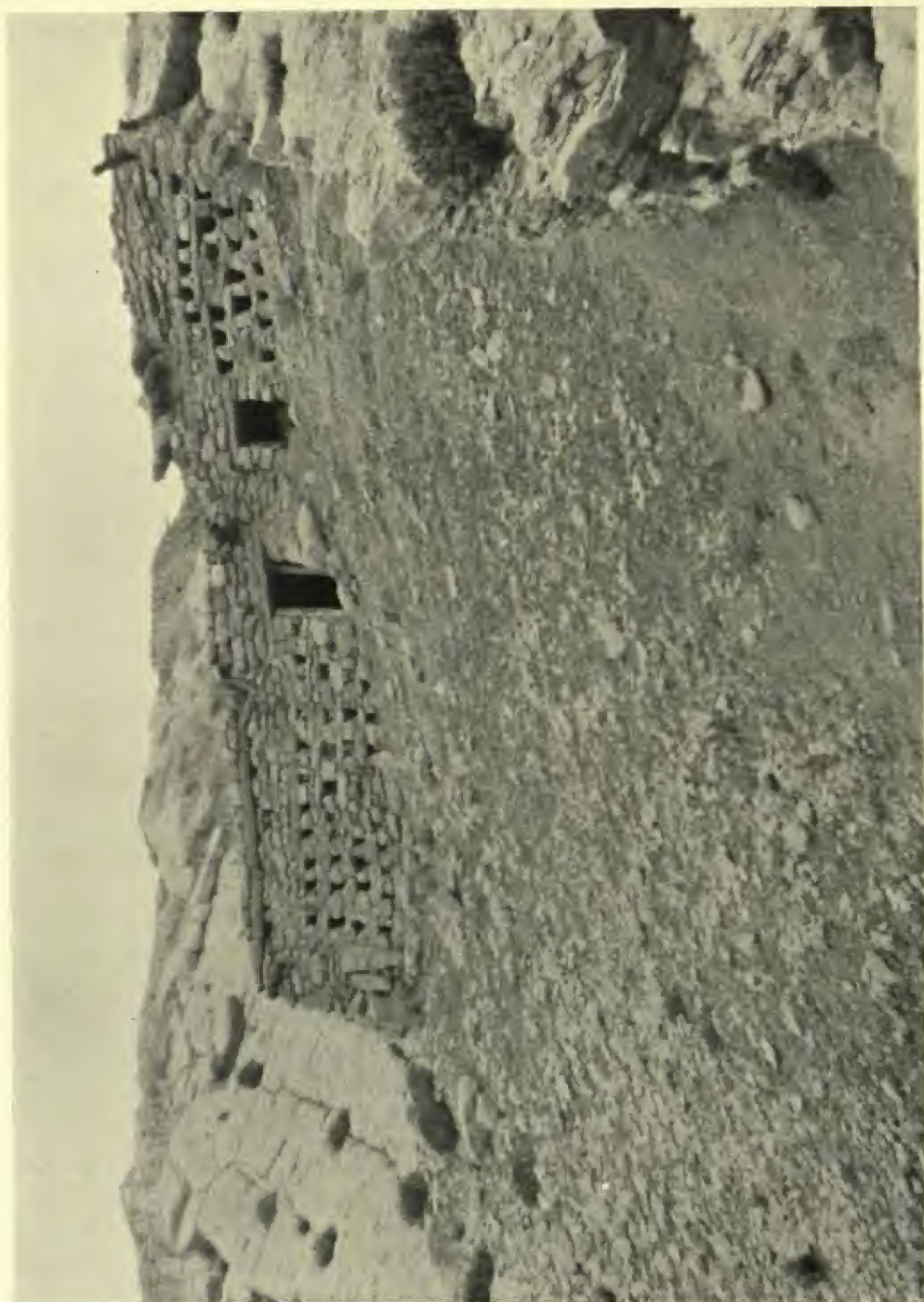
With the exception of a few vegetables such as turnips, etc., the Shawiya produces nothing from his soil which he can export to his neighbours in the plains even in the present piping times of peace. But there is one commodity which he can and does produce for export, and that is honey. Certain neighbouring tribes of Barbary were famous for their honey even in the time of Herodotus,⁸ and the Shawiya

⁶ *Geographical Journal*, lix, 26 and lxiii, 426.

⁷ Mommsen, *History of Rome*. (Everyman edition, ii, 9).

⁸ iv, 194.

PLATE VI



BEE-HOUSE, OULACH
Ph. M. W. Hilton-Simpson

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are no less so today. So numerous are their cylindrical hives of basketry that these are often stored in huts (plate vi) specially built to contain them stacked one upon another in rows, each hive with its entrance hole placed against a narrow opening in the wall of the hut, the honey being extracted from the opposite end of the hive without removing it from its position. Honey and walnuts, to be eaten together, form the dish which every Shawiya loves to place before a guest, and delicious they really are, especially in a land in which the native fare tries a European's gastric endurance to the utmost.

But if each village of the Aures is or has been practically self-supporting, the same may be said with equal accuracy of every individual Shawiya hut.

The Berber, being a Moslem, is allowed four wives, though for pecuniary reasons he rarely maintains more than one or two at a time. The women of his household, in addition to their natural tasks of cooking, tending the hut and rocking the baby in a basket-cradle slung from the roof, tan the goatskins in which they carry their water and in which, suspended from tripods, they churn the milk of their husbands' goats, sheep and, in some districts, of his very few dwarf cows. The women fashion the few simple cooking vessels of pottery each establishment requires, kneading the clay into the crude forms employed by hand without the use of a potter's wheel, thus keeping alive a method of potting which dates back to the very earliest times.

It is the women of the household, too, who weave upon a vertical loom the excellent woollen material, made from the handspun wool of the sheep, the 'burnouses'—or hooded cloaks—worn by the male population; and, upon a horizontal loom, the coarser fabrics of goat's hair required for the sacks used for the transport of produce upon mule-back. Both these hand-loomes are of very archaic form; indeed they seem to me to resemble in the closest detail those depicted in use in ancient Egypt from fifteen to twenty centuries before our era.

The women grind the corn between the twin stones of a rotary hand-quern such as that to which Homer⁹ apparently refers and which exactly resembles those used until the 19th century in certain parts of the British Isles. It is true that in certain valleys an ancient type of water-mill,¹⁰ driven by a horizontal rimless wheel placed in the course

⁹ *Odyssey*, xx, 105, and there is further evidence for this.

¹⁰ Described and illustrated in *Scottish Geographical Magazine*, xxxviii, July 1922.

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of a swift-flowing stream or canal, is used by professional millers who are paid a percentage of grain for their services, but the hand-quern is still the more generally employed. Like the hand-quern, the water-mill of Shawiya type is known in northern Europe even today, in Scandinavia and in the islands off the Scottish coast, or has been in use there until the last few years.

It seems possible that in remote ages the 'saddle-stone' method of grinding corn—as employed in ancient Egypt and in Britain—was used in the Aures; I have seen gypsum powdered by means of it on many occasions; but for the production of flour it has now completely disappeared.

The twin-stone querns (plate VII) are manufactured by the men in the very few villages of the Aures near which stone suitable for them can be quarried. They are distributed by sale throughout the massif and they constitute one of the only two manufactured products of the hills which are exported to the neighbouring desert and plateau in quantities sufficient to merit even a moment's consideration.

The other product is the flat wooden dish or bowl turned by means of a 'pole lathe' from the wood of the walnut trees common in parts of the Aures. The lathe upon which it is produced is identical in principle and almost identical in detail—as I have shown in a paper published in *Man* (1924, no. 40)—with the lathe used today in the turning of chair legs in Buckinghamshire. The ancestry of this appliance is still obscure, but the Shawiya and the English specimens so closely resemble one another that I am sure they must possess a common origin.

The simple carpentry of the hills is carried out by the men; professional craftsmen exist in nearly every village. Although many of the tools they use nowadays are of European make, imported by itinerant pedlars from the centres of French civilization beyond the borders of the massif, yet they still employ, as their principal tool, a short-handled adze which strongly recalls the implements of the Bronze Age. It is now locally made of iron and closely resembles its prehistoric British predecessor.

I have traced in barest outline rather than depicted in detail the life lived by the Shawiya in the Aures hills today; but have dwelt at greater length upon the topography of Berber 'hill-top' villages and the now happily ended days of inter-tribal war; for geographical conditions and the imminence of sudden strife have contributed, in perhaps equal degree, to the foundation of such settlements both in

PLATE VII



QUERN-MAKER, MENAA

Ph. M. W. Hilton-Simpson

By permission of the Royal Scottish Geographical Society

facing p. 400

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modern Algeria and in pre-Roman Britain. In this belief I am strengthened by the following passage in Allcroft's *Earthwork of England* (p. 210):—'Of sieges and blockades it is practically certain the prehistoric period knew nothing. A single rush, a succession of rushes, at most a day's assault, was all that was to be feared, and a hostile force would more often confine itself to desultory raids and cattle lifting. . .' This extract seems to me to indicate an exact parallel between the warfare of ancient Britain and of the Aures hills; a kind of warfare differing from that of by-gone days in New Zealand, described by Mr Raymond Firth in the first number of *ANTIQUITY*, in that, among the Maori, more or less prolonged sieges were not unusual; yet it seems that the same difficulty with regard to water storage presented itself alike to the dweller in the Antipodes and to the Shawiya. With regard to the arts and crafts I have mentioned, perhaps I may be allowed to hold the opinion that a careful study of them would be of very great value to those attempting to reconstruct the life of early Mediterranean peoples; whether or not they can throw any light upon life in ancient Britain students of British archaeology must decide.

Ithaka

by ALEXANDER SHEWAN

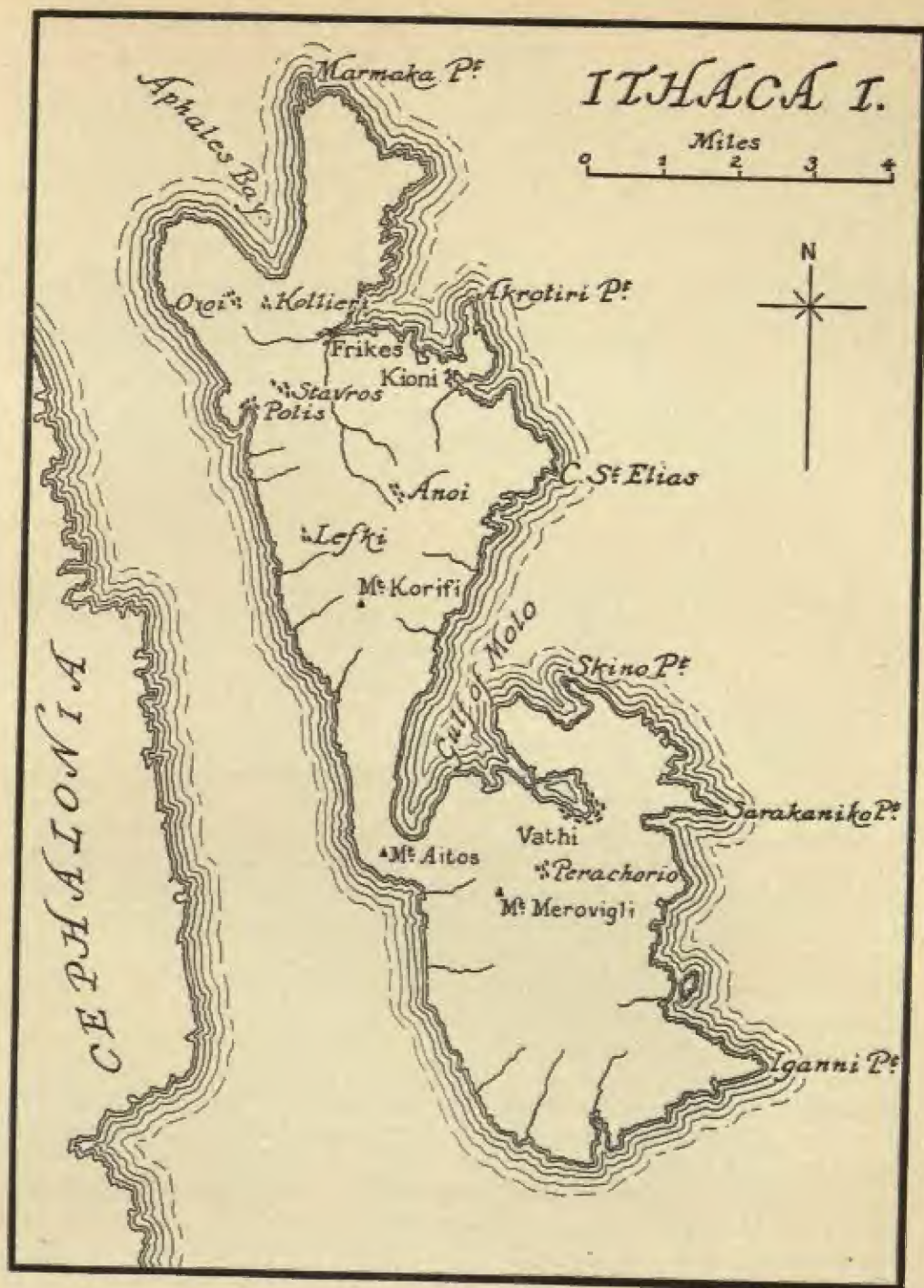
THE island of Ithaka in the Ionian Sea has been famous throughout the centuries that have passed since European literature began with Homer. In itself it is small and mountainous, and but a poor spot on which to stage a noble drama, but its association with the far-famed hero of an immortal epic has more than made up for the insignificance of the terrain. In recent years it has achieved further distinction as the subject of a lively, and at times embittered controversy about its actual position on the map. Most scholars are content to believe that by Ithaka Homer meant the island which still bears the name, now modified to Thiaki; others affirm that the scene of the poet's story was really Santa Maura to the north, while others again have given the honour to Cefalonia to the west. Quite recently a German geographer has even proclaimed that 'Corfu is Ithaka.' Samuel Butler, in his famous Homeric escapade, convinced himself that Ithaka was to be found in one of the Aegadean Islands off the coast of Sicily. So far, it has not been said of it that it never existed save in the imagination of the poet,* but it may yet be the victim of that last infirmity of Homeric geographical speculation.

Interest in the island due to certain observations by the ancients was quickened by the visits of travellers—Gell, Dodwell, Leake, Mure and others—in the course of last century. The general aim of their explorations was to test the correctness of the Odyssean descriptions, and this they did with thoroughness. Their fault was that generally they went too far; they expected, and sought to establish, perfect correspondence. The modern expert comments that a poet is a poet; that freedom in his dealings with time and space is only his right; and that trifling discrepancies between the poetry and actuality are not to be regarded as vitiating the whole description and stamping it as purely

* Since this was written it has come to notice that Albert Herrmann, in a paper in the *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1926, states that all that is related about Ithaka by one of several poets whose contributions to the *Odyssey* he believes he can identify, 'existed only in the imagination' of that poet.



VIEW OF HARBOUR, ITHAKA



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imaginary. And all that may be conceded. The old explorers were certainly the victims of an excess of zeal. It has even been said that the inhabitants of the island made profit of their eagerness, by inventing names of localities to do duty as the remains of the appellations to be found in the epic.

In the course of time everything in the epics became suspect to the restless criticism of the Germans. With other matters, the geography and the topography were studied afresh, and with no benevolent intent, but rather with a determination to prove unreality and romance. Wondrous results were obtained. A notable instance is the Scheria of the *Odyssey*, which Bérard and others have proved to be Corfu, as the ancients believed. By fanciful interpretation of the epic data it was easily relegated to the limbo of fairydom as a mere 'Weissnichtwo,' or classed with other Isles of the Blest. Its people were Ferrymen of the Dead, or Spirits of the Winds or of the Waves. They were Dusky Men, or Men of the Light. Ulysses was the Sun God and Scheria the Realm of Darkness; or the Spring God, who in an earlier 'version' of the *Odyssey* was mated with the Earth goddess Nausikaa. The results were extraordinary in their diversity, but one thing seemed certain to all these inquirers, that Scheria and the Phaeacians who peopled it belonged to the supernatural.

The scene of the *Iliad* passed through a similar experience. The fascination of Troyland for European scholars dates back to the days of Maclaren, Bryant and Morritt, when Byron called Bryant a blackguard, and described the Troad as 'a fine field for speculation—and snipe.' Speculation was continued by Hercher and Forchhammer, Brentano and von Eckenbrecher, while the pickaxes of Schliemann's workmen were striking secrets from the ruins of the castles of the Troad and the Argolid. The story is familiar from many handbooks; the ridicule that compared the explorer's confidence to the 'childlike faith' of Gladstone, the astonished silence before the marvels that were unearthed, the explanations that were attempted, not without the imputation of fraud, and the eventual capitulation. And when the excavations in Crete had widened the view opened out by Schliemann, men were fain to admit that history had been enriched by a page that had been lost from her record.

The turn of Ithaka came in due course. The island had kept its name; its identity had as yet hardly been questioned; the characters and events of the *Odyssey* were specially human, and there was little room for any theory of the supramundane, and still less for the suggestion

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that an Ithaka had never existed. But the feeling of the age was against the acceptance of any simple, natural explanation, and, for lack of a better subject, fixed on the topography, with the object of establishing discrepancies between the poetry and reality. It hoped to prove at least this much—that the Ithaka of the *Odyssey* was a locality with which the poet had no personal acquaintance.

Völcker had, in his *Homeric Geography* (1830), indicated some difficulties, but the formal attack was made nearly forty years later by Rudolf Hercher. He considered that it was impossible to adapt the Homeric description to the island of Ithaka; and this opinion became so popular, that he was encouraged to turn his attention to the Trojan Plain, where he had the same fancied but unreal success. His exploration of Ithaka was completed in one day and confined to the central portion, but the fate of the island was sealed. Hercher's essay has since been demolished by set replies in his own country, especially one by Partsch, an eminent geographer whom all participants in Ithakan controversy recognize as a high authority; and his theory is now chiefly of interest because it shows how easily men's minds were swayed in those days against anything in Homer.

The general accuracy of the *Odyssean* topography is not to be questioned. The differences between it and fact are not serious. In the first place, accurate descriptions of land and sea in the Mediterranean as these are known today to anyone who possesses an atlas, are not to be expected in an early epic; and in the next place one must again insist on the right of a poet to depart from strict accuracy of description, if his tale require it. In short, such discrepancies as exist may be due either to inadvertence or to the deliberate use of the imagination. The former are negligible; for the latter it is contended, in the words of Professor Bury, that, if imagination is at work, 'it confines itself within strict limits.' In Ithaka, a cave may not be quite so near the sea as the poet puts it, and distances traversed may not correspond to a furlong, but the fine safe havens, the Raven Rock and the Spring Arethusa, are where they are said to be, and the truth of the descriptions of the physical features of the island in two well-known passages, and the appropriateness of the Homeric epithets, are not to be denied.

Hercher's polemic having failed, it was suggested some years ago that a fresh presentation of his case might be made in the light of the newer information that has accumulated in sixty years, but none has appeared. Failing that, the general topographical correspondence must be deemed to be sufficient proof of the identity of the island, but other

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objections are still insisted on. One which is based on an alleged inaccuracy in the description of the position of the island relatively to its neighbours, will be noticed further on. Another is that it is impossible to believe all that the poet describes could be found on the Ithaka of those early days. The difficulty is born of the habit of thinking of it as a little rocky isle, the 'barren crags' of Tennyson's poem, and of contemplating the bare brown humps that emerge from the sea in a modern bird's eye view of the island. To the minds that entertain this difficulty Homer has embellished without restraint. It is a common charge. The late Professor Mahaffy, for example, was particularly positive. To him the poet was, in regard to geography, 'a mere romancer,' and one who 'deliberately drew his pictures even of Greece, from fancy, and not from observation.' His illustration of this, no doubt one of the strongest he could select, was particularly unfortunate. He ridiculed the notion that a car could be driven, as it is in the Odyssey, from Pylus to Sparta, and the *géographes de cabinet*, as Bérard has styled one class of Homeric critics, concurred that this was beyond the bounds of possibility, till that French explorer showed to general satisfaction how the trip was accomplished. To any one who has driven a tonga, a two-wheeled vehicle which in its simplest form is a good reproduction of the Homeric chariot, through a mountainous tract in India, the difficulty involved is not of a serious nature.

But let us consider this objection further by reproducing in some detail the picture of Ithaka as given in the Odyssey. In Achæan days Ithaka must have been forest-clad, as the poem says it was, and must have enjoyed the fine climate which it still shares with the other Ionian Islands. We further read that it had 'unfailing watering-places,' and that in the forest there was 'wood of every kind.' A grove of poplars, with an altar of the Nymphs, surrounds the cistern which collects the water of a spring for public use. In a garden are the olive and the vine, the apple, the pear and the fig. Olive oil, 'perfumed,' is stored in the house of Ulysses, and his bedpost of olive wood is famous. The tree thrives in these islands. One mentioned in the Odyssey has not been found; it could hardly, as Gladstone observed, be there after three millennia, though he added that he had seen in Cefalonia the shell of one 'thirty-six feet in circumference, which may have been of any imaginable age.' Even now, when the destruction of the forest has left but scanty soil, the island produces olive oil and wine for export. And currants; a traveller has preserved the prayer of an old lady

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resident that John Bull might never lose his love for plum-pudding, for it would be a sore blow to Ithaka if he did. If the island at the present day does not actually flow with milk and honey, neither, as has been said in this controversy, does Canaan.

That farming was of minor importance goes without saying, but there was a certain amount of tillage. Ulysses himself was a champion mower and plougher. Manure was stored. Mules were bred for ploughing. There was vegetable cultivation with the hoe. Athene's statement that there was 'any amount of food' produced perhaps refers chiefly to the cattle, goats and pigs. Their flesh was the principal article of diet, but the table was furnished in other ways. Poultry was kept; witness Penelope's geese. Birds were snared, and perhaps killed by falconry. Wild goats, small deer and hares were hunted with dogs. Hares are plentiful on the island still. Fish seem to have been caught by the rod and netted in the sea.

There was specialization of industry, and the craftsmen were in a manner public servants, as in Indian villages. With bard, seer and physician, the carpenter is named, and the smith has his smithy. The potter does not appear, but the big jars in the palace storeroom, which recall those unearthed in Crete, may have been of local make, for the potter's craft was general in Greece of the time and pottery a staple trade. Tools of various kinds were in use. Ships were 'many,' and may have been home made. There are numerous indications of luxury in dress, jewellery, and house furniture and utensils, and in the ornamentation of these with gold and ivory. Penelope's own chair, made by a famous artificer, was evidently a Sheraton piece of the day.

Again it has been remarked that there are, in Homer's pictures of life, many touches that are surprisingly modern. They are found even in the *Iliad*; they are of course more frequent, and more appealing, in the more domestic *Odyssey*. The old nurse lights her boy to bed and hangs up his clothes after smoothing out the creases, much as an old family retainer would do now. A visitor 'tips' the bathwoman and other domestics. The arrangement of house and furniture does not sound strange to modern ears. The housekeeper has her subordinates well in hand and sees they do their work, even to the sponging of the tables after one of the late nights of Penelope's wooers. Those tormentors of the queen amuse themselves with draughts, perhaps of the kind found in the Cretan palace, or quoits or light javelins. A father gives his little son certain fruit trees 'for his very own.' There

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is in the town a *lesché*, a public house or lounge, where a wanderer can be accommodated if the smithy likes him not. And so on.

The above summary statement may be taken as indicating *prima facie* that there was no small degree of civilized comfort on the island, and that it had flourished under the benign sway of Ulysses. What were the sources of its prosperity? One was its flocks and herds. The king himself was conspicuous for the great size of those he owned, and he had grazing rights, and something more, on the mainland. And there was commerce. For Ithaka was, we know, an important centre, or port of call, as the last stage on the voyage from Greece to Corfu and the West. It was also the chief town of a maritime kingdom. An Austrian admiral, the Archduke Ludwig Salvator, who is said to possess intimate knowledge of the Ionian Islands, and who investigated the matter in the course of prolonged visits, has declared that no better location for the capital of the island realm of Ulysses could have been selected than that where the *Odyssey* places the town of Ithaka.

Such is the Homeric picture. It is of course open to anyone to say that the whole is merely a poetical figment, but surely the view that it is, in large measure at least, a reproduction of fact is as sane an explanation. Many will think it unlikely that an old bard, singing to a courtly audience of the deeds of heroes, would say the thing that was not, not once but repeatedly, and to men who were doubtless well acquainted with the facts. And why should it surprise us if increasing knowledge of prehistoric conditions should establish still further the fidelity of the poet's description of Ithaka? If the hero of the *Odyssey* himself, and Agamemnon and other great names, can be accepted by scholars of standing as real historical personages, it is surely not a far cry to the reality of the island scenes. There is good authority for the saying that 'Odysseus on Ithaka is not myth or saga at all.' 'It would be astonishing, even inhuman,' Dr Farnell has said, 'if none of the leading names of the agents in the war against Troy, or of the great royal dynasties of Mykenai, had been remembered and preserved.'

It is a prime difficulty with some that a mere tract of forest could not possibly attain to any considerable degree of material comfort and prosperity. There are regions in India, and doubtless in other parts of the earth, with rainfall, seasons and climate very similar to those of Ithaka, the inhabitants of which are singularly well off. Wood, water and grazing are plentiful, and cultivation, though limited to the area not under forest or scrub jungle, is carried on under easy conditions. And agriculture is not the only possible source of wealth to an island community.

PLATE II



VIEW IN THE MOUNTAINS OF ITHAKA

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Ithaka's troubles are not at an end even yet. In the beginning of this century a German scholar, Dr Wilhelm Dörpfeld, embracing a theory which had been previously hinted at in his own country, declared that by Ithaka Homer meant Leukadia, or S. Maura, a more northerly member of the island group. The new theory was mercilessly criticized, even in Germany, notably by von Wilamowitz, the present Rector of the University of Berlin, and the slender arguments on which it is based have been repeatedly refuted. To enter into much detail is here impossible, but some features of Dörpfeld's case may be mentioned. His starting-point is the assertion that the *Odyssey* assigns four islands as the kingdom of Ulysses. The poem gives no warrant for this, but, though the error has been pointed out more than once, it is not abandoned. Then a passage of the *Odyssey* which is highly inconvenient to the theory is rejected as late and spurious, and that old gazetteer of prehistoric Greece, the Catalogue of the Ships in the *Iliad*, is condemned as suffering from the same disability. And in order to fit the hypothesis to conditions in Greece as these are known from Greek literature—which, be it added, gives not the slightest hint of any connexion of Leukadia with Ulysses—a series of movements of peoples has to be postulated without any ground in history or tradition. Among individual arguments the principal is an alleged misdescription of the position of Ithaka relatively to the neighbouring islands. But, admitting it, what then? Are we to expect from an old epic poet the accuracy required of a surveyor or geographer? Caesar knew Britain, but his account of it is defective. Mure, the historian of Greek literature, has asked in this connexion if we are to deny to Scott acquaintance with Scotland 'because of an equal difficulty in identifying the bay of Ellangowan or the castle of Tillietudlem,' and Goethe's reply to those who haggled over the scene of the action of his *Hermann und Dorothea* is familiar. It is not an objection that will weigh with those who can suffer some geographical or topographical inexactitude in an old epic. Again, changes in physical conditions in the course of three thousand years are too lightly regarded. The level of the Mediterranean has risen, or the land has subsided, as has been shown for Tunisia, Crete and Italy; coasts have suffered erosion; forests have disappeared and water-supply has consequently shrunk or vanished; and ports have been closed by silting. But more than this; the theory was characterized by startling novelties. A familiar passage was interpreted in a way that had never occurred to any scholar, and words were forced to meanings that even the ancient commentators never

knew. The word for 'strait' had to be explained to include almost any stretch of water, and an epithet meaning 'very deep,' was translated, to the general amazement, by 'into-the-land-far-stretching,' and so on. The final deliverance of the author of the Leukas-Ithaka Question, as it is called, is soon to appear in book form, and the theory will doubtless receive its quietus.

It is a legacy from the close of a period when the Higher Criticism of Homer was running riot, but much that its patrons regarded as certain has been refuted or discredited. Such, to take a few examples, are the condemnation of books of the epics by methods and tests which will not bear scrutiny; the enucleation of poems and the discovery of old epics unknown to the ancients; 'the dreary occupation of proving all the heroes to be Faded Gods'; the ransacking of saga cycles to provide new combinations, and a consequent topsyturvydom whereby the Troica were transferred in their inception to Greece, and Hellenic origins were found for the heroes of Ilium. These little systems have had their day. The late Dr Leaf, who once believed in them, formally abjured their methods some years ago, and at the same time indicated a better way of dealing with the Homeric problem, 'to confront Homer with facts,' that is, by combining geography and archaeology.

Excavation has revealed much of the realities of the age of which Homer sings, and has dispelled many doubts. Traditions that were not so long ago regarded as old wives' tales or the story of 'a past that never was present,' have become rehabilitated, and in striking instances shown to have a nucleus of truth. 'The voice of tradition,' the late Sir William Ridgeway once said, 'is often thin and piping, but confirmation is rising out of the ground every day.' 'The spade,' in Dr Farnell's words, 'has overthrown the theories of the symbolizer and the sceptic' about Troy, and 'restores reality to the myths' of Crete. Much of the Argonautic saga is no doubt *Helfermärchen*, but Miss Bacon's careful study¹ proves it to be in substance the narrative of a real voyage. Or, to revert to the matter in hand, and to quote the author of the Leukas-Ithaka theory himself, 'for nearly three thousand years the island called Ithaka had passed as the fatherland of Odysseus, as the Ithaka of Homer.' Such a long and consistent tradition is not to be lightly set aside, and the burden is heavy on him who would subvert it.

Then there is the continued elucidation of the Homeric geography,

¹ Janet R. Bacon, *Voyage of the Argonauts*, 1925.

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especially by Bérard's monumental work, *Les Phéniciens et l'Odyssée*, which, whatever its faults, had at least the merit of showing that Homer faithfully portrays conditions that were familiar to him. Finally, there are the Hittite records at Boghaz-koi. Only a small number of the ten thousand tablets have so far been read, but already some high authorities believe that they establish the existence of an Achæan polity a century or two before the Troica, an Achæis which acknowledged the Pelopidae, the ancestors of Agamemnon, as emperors or suzerains. It would seem to have been one of the great powers of the world, and to have been in a position to rank with Egypt and Babylon and other states in international negotiations, and even 'to dare an attack on the Hittite empire.' This would imply a long period, not merely of high civilization—that was already known—but also of strong settled government, and, that granted, we need not reject the prosperity of an island so greatly favoured by nature as Ithaka is, in an age that knew the glories of Knossos and Mycenæ. In short, recent discoveries are helping us to a view of the Homeric age and life as real and historical, and have rescued the epics from the Bolshevistics of the Higher Criticism of last century.

The Climate of Prehistoric Britain

by C. E. P. BROOKS

AFTER the latest glacial advance of the Quaternary Ice Age, the climate of north-west Europe did not simply recover to its present level, but underwent a series of fluctuations, at times becoming warmer and drier than at present, and again approaching glacial conditions. The pioneer in the investigation of these post-glacial climatic changes was the Norwegian Axel Blytt, who as long ago as 1876 made out a succession of dry and wet periods, which he termed Boreal, Atlantic, sub-Boreal and sub-Atlantic. The existence of these four periods has been abundantly confirmed; they are best shown in the peat-bogs of Norway and Sweden, where they are represented by layers of tree-stools alternating with beds of peat, but they have now been connected with de Geer's geochronological time-scale derived from the banded glacial clays. It is found that the dry, mainly cool Boreal period extended from about 6500 to 5200 B.C., the moist warm Atlantic period from 5200 to 3000 B.C., the dry warm sub-Boreal from 3000 to 850 B.C., and the wet cool sub-Atlantic from 850 B.C., to about 300 A.D. Thus the Neolithic in north-west Europe falls partly in the Atlantic and partly in the sub-Boreal period; the Bronze Age entirely in the latter. The early Iron Age, on the other hand, falls mainly in the sub-Atlantic.

A succession of dry and wet periods can be recognized over a wide area in northern and central Europe and again in Scotland and Ireland. The Swiss lake-dwellings are strong evidence of a dry climate during much of the Neolithic, because when they were established the levels of the lakes must have been very much lower than at present, especially if, as seems probable, the dwellings were first built not in the waters of the lakes but on peat-bogs on their Neolithic shores. In Scotland James Geikie obtained a sequence similar to Blytt's, though he stressed the changes of temperature rather than of rainfall. Geikie named his stages Lower Forestian, Lower Turbarian (*i.e.* Lower Peat), Upper Forestian and Upper Turbarian. The Scottish peat mosses

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have since been examined more closely by F. J. Lewis¹, who found that the Upper Forest Bed extended over the whole mainland of Scotland almost to Cape Wrath, rising in places to nearly 3000 feet above sea level, or far above the present limit of trees. In the Highlands however it is split into two layers separated by one to three feet of peat, indicating a break in the dry conditions. It is interesting that a similar break in the dry Neolithic climate is shown by the history of the Swiss lake-dwellings. The Upper Forest layer is not found in the Shetlands.

In northern Ireland (where, in 1914, I first became interested in post-glacial climates) two wet periods represented by thick peat layers are clearly separated by a dry period represented by a forest layer, during which later Neolithic man inhabited the surface of the bogs.² In 1914 I did not know of Blytt's work and I named the earlier wet period the Maritime Phase, the dry period (corresponding with Geikie's Upper Forestian) the Forest Phase, and the later wet period the Peat Bog Phase. Blytt's nomenclature has priority and should always be employed for these climatic stages.

In England the evidence for post-glacial (*i.e.* post-Wurm) changes of climate is not nearly so strong as in Scotland or Ireland. On Cross Fell in Cumberland the Upper Forest layer is found to a height of 2,550 feet, and it is found again in Lancashire, where also the surface of the bog became firm enough for a corduroy road to be laid across it, but on the eastern side of the Pennines the succession differs, especially in the absence of the Upper Forest layer. A section at Warcock Hill near Marsden described by T. W. Woodhead³ shows only one forest layer, at the base of the peat and corresponding with the Lower Forest Bed of Scotland. The base of the peat is formed by grey sand containing two epi-Palaeolithic floors. This evidently represents the Boreal period; Woodhead remarks that the flints from the lower floor are unpatinated while those from the upper floor are patinated, suggesting the oncoming of wetter conditions. Above this sand is the layer of tree remains with Neolithic tools, followed by peat in the lower part of which Neolithic and Bronze Age remains are found. The base of this peat corresponds with the Atlantic period in Sweden, but there is no trace of the sub-Boreal tree layer which is so prominent in Ireland,

¹'The plant remains in the Scottish peat mosses'. *Trans. Roy Soc. Edinburgh*, 1905 to 1911.

²*Discovery*, 6, 1925, p. 470.

³'The age and composition of the Pennine peat'. *Journ. Botany*, 1924.

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Scotland and Scandinavia. As W. H. Pearsall remarks:⁴ 'The Neolithic Dolmen period apparently indicated at the base of the Pennine peat lies at the beginning of the Scandinavian sub-Boreal period, and we are apparently faced by the difficulty that the Scandinavian climate was becoming drier and more favourable to woodland vegetation while British climate was becoming colder and moister. The evidence clearly suggests that either the Scandinavian and British culture periods were reached at different times or else that the climatic sequences were actually somewhat different'.

A difference in the sequence of culture periods seems much less probable than a difference in the climatic sequence. At the present time a season of drought in one country is often a rainy season in another, and in fact a dry year in south-eastern England is more often than not a wet year in the western Highlands of Scotland. To enable this to be understood, and to prepare the way for reconstructions of the weather conditions prevailing during the Neolithic and Bronze Ages, it is necessary to make a few remarks about the causes of rain. In these days of broadcasting everyone knows that bad weather—rain and high winds—accompanies cyclones or 'barometric depressions', while fine weather accompanies anticyclones or 'highs'. On the northern side of a depression the wind is easterly, while on the southern side it is westerly or south-westerly. Depressions approach these islands from the Atlantic, and at present most of them pass between the north of the British Isles and Iceland. Hence the prevailing winds over the British Isles are westerly or south-westerly.

Apart from local thunderstorms, there are two main sources of rain, cyclonic and orographic. Cyclonic rain falls during the passage of a barometric depression and is almost independent of the relief of the ground; orographic rain falls where a moist wind strikes a range of hills or mountains. The prevailing winds over this country being south-westerly, orographic rain falls mainly on the hilly parts of Ireland and western Britain, which for this reason are by far the wettest parts of the country. Rainy seasons in the British Isles fall into two clearly marked types, according to whether they are due to a predominance of cyclonic or of orographic rain. In the first type a series of depressions pass directly across the country and give heavy cyclonic rain in all parts, but since the winds are variable rather than westerly, there is not much orographic rain. Eastern and southern England are

⁴ 'The ages of peat deposits'. *Nature*, 114 (1924), p. 829.

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abnormally wet, but the north-western parts of the British Isles may be drier than usual. The other type of rainy season occurs when a series of deep depressions pass to the north-westward of Ireland and Scotland. Pressure is very low in the north, over Iceland and Scandinavia, but normal or even higher than usual in southern England. This type of rainy season may be illustrated by the pressure distribution of March to May 1913 (figure 1). During these months strong westerly

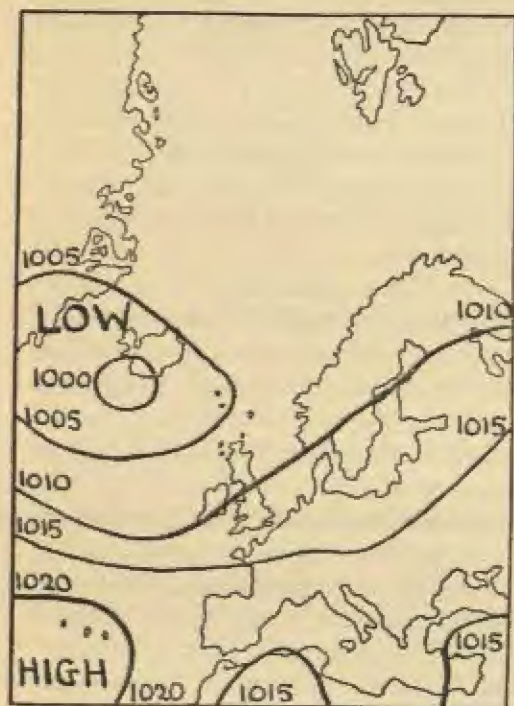


FIG. 1. Pressure Distribution, March-May 1913

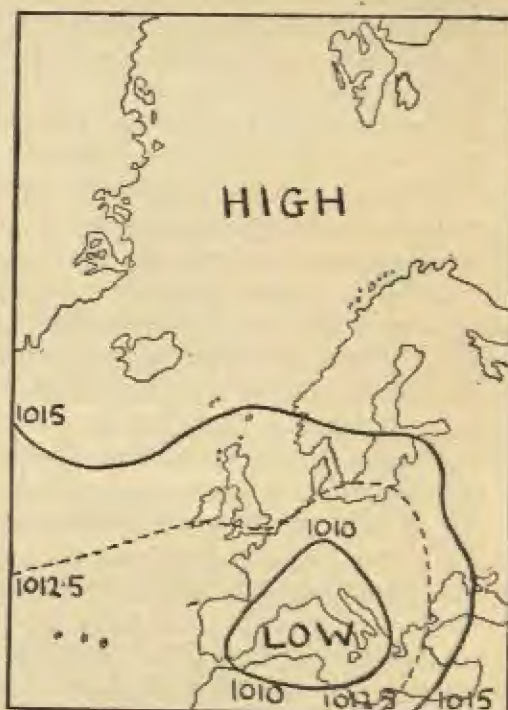


FIG. 2. Pressure Distribution, Jan.-Feb. 1895

and south-westerly winds prevailed; Ireland, Scotland and the west of England received exceptionally heavy rainfall, exceeding twice the average fall in many parts, but eastern and southern England had an almost average fall for the season.

Similarly droughts fall into two classes. In the first the Azores anticyclone extends unusually far to the north-eastward, so as to include the British Isles in an area of high pressure. The drought of 1921 was of this type; it was most severe in southern England and in

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a belt across central Europe to Russia, but dry conditions extended over most of the Mediterranean area. On the other hand the northern half of Scandinavia experienced rather wet and stormy weather, and even the north-west of Scotland lay outside the anticyclone and had persistent south-westerly winds and a wetter summer than usual because of the orographic rainfall.

The second type of drought in the British Isles, much less frequent than the first, is caused by an anticyclone to the northward of these islands. An example occurred in the early months of 1895, and figure 2 represents the pressure distribution during January and February of that year. The majority of the depressions passed to the south of Ireland and England, and over the British Isles the prevailing winds were easterly. This drought was most severely felt over the western Highlands which normally receive a heavy orographic rainfall, while eastern and southern England and the eastern slopes of hill-ranges like the Pennines received almost their usual fall.

The Atlantic period was a time of rapid peat formation in northern and north-western Ireland, western Scotland, Lancashire, Scandinavia and north-west Germany, pointing to heavy rainfall over these regions, while eastern and southern England do not appear to have been wetter than at present, and may have been drier, so that in the British Isles this wet period was of the orographic type. Another scrap of evidence pointing to the same conclusion is the direction of fall of trees in the Boreal submerged forests of Lancashire and South Wales. J. Fairgrieve⁵ noted that of 29 trees of which the direction of fall could be determined, 18 fell towards east or north-east, pointing to west or south-west winds. We may therefore take figure 1 as a fair representation of the pressure distribution during Atlantic times, and the weather in the British Isles associated with this type of pressure distribution as the usual weather of Atlantic or early Neolithic times. The Monthly Weather Report describes March 1013 as 'rough and wet', with 'an entire absence of the keen dry winds associated with the season'. April was 'dull and wet' and May was 'very variable'. Even more noticeable than the heavy rainfall was the abnormally large number of days on which rain fell in the west, often more than 25 in each month. The rain was of the steady soaking type, recurring for many hours day after day.

⁵ 'Evidence of prevalent wind directions in the distant past'. *Q.J.R. Meteor. Soc.* 50 (1924), p. 159.

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In sub-Boreal times both the amount and the distribution of the rain were very different. The small rainfall in the west is clearly shown by the presence of tree stools submerged in the waters of small Irish loughs. There are several such occurrences in Donegal, most of which can only be accounted for by supposing that when the trees grew the lough basins were dry, and that the evaporation from a free water surface exceeded the rainfall. Evaporation from a free water surface increases as the rainfall diminishes, and in Camden Square, London, the two meet at about 18 inches a year; western Ireland is more open, and under similar weather conditions the evaporation would be greater, but the rainfall cannot have exceeded 25 inches a year. At present the average fall is about 50 inches. Another example is Lough Arrow in Connaught, where the rainfall is now about 40 inches a year.

A second striking feature of the sub-Boreal climate was the absence of strong westerly winds. At present these winds are quite as inimical as the heavy rainfall to the growth of trees on the western coasts of Ireland, Scotland and Norway. During the sub-Boreal however trees grew freely; stumps can be seen in very exposed situations in north-west Ireland, and the islands off north-west Norway, now quite bare, were forested to the water's edge. This absence of strong westerly winds shows that the dry conditions were analogous to the second type of drought, due to high pressure over Scandinavia and to westwards. Under these conditions the prevailing winds over the British Isles would be easterly or north-easterly; the tracks of depressions would lie mainly along the Channel or across the Bay of Biscay, and the rainfall would be heaviest over southern England and the eastern slopes of the English hills.

The type of pressure distribution shown in figure 2 satisfies the conditions of the sub-Boreal period as regards rainfall, but not as regards temperature. Under such conditions the summers would be warm, but the winters would be intensely cold, and in fact February 1895 is renowned for its skating. But there is strong botanical evidence that the sub-Boreal winters in Sweden were no colder than the present winters, while the Irish peat-bogs could not have been frozen in winter, or they would have been uninhabitable when the spring thaw came. The sub-Boreal seems to have been generally warmer than at present, and the amelioration seems to have increased northward. Calculations show* that a sustained increase of about 5° Fahr. in the winter

* C. E. P. Brooks, *Climate through the ages*, 1926, ch. 1.

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temperature over the Arctic would suffice to clear away the Arctic ice, and there is reason to believe that this actually happened during the sub-Boreal period. This would at once bring much warmer winters to northern and central Europe, and rob our east and north-east winds of most of their terrors.

The distribution of pressure and winds which has been inferred for the sub-Boreal period differs considerably from that for the Forest phase which I constructed in 1921⁷. This difference is due partly to a fuller knowledge of the distribution of the Upper Forest layer and partly to recent investigations into the causes of droughts and rainy periods. The introduction of the method of pollen spectra for the investigation of peat bogs offers the hope that it will ultimately be possible to map out with accuracy the areas over which peat was forming at different times and so obtain very detailed knowledge of the variations of post-glacial climate.

⁷ 'The evolution of climate in north-west Europe'. *Q. J. R. Meteor. Soc.* 47 (1921), p. 183.

PLATE I



BRICK TOMB IN ROMAN BARROW, MERSEA ISLAND
From negative lent by S. Hazzledine Warren,

facing p. 419

Barrows

by O. G. S. CRAWFORD

THE fascination of Archaeology consists in reconstructing the life of the past, but by a curious paradox we obtain most of our raw material from the graves of the dead. We profit by the superstition which ordained that the dead man should be supplied with tools and weapons, and the dead woman with ornaments, to accompany them to the land of shadows. We profit also by the conservative instinct which regulated the construction of the tomb and the accompanying ritual. Nothing changes so slowly as burial-customs, even in these radical times. In all essentials the modern funeral procession remains Victorian in its gloomy respectability, its tawdry finery, and its obsolete methods of transport.

The origin of barrow-making being unknown, one is free to speculate without the risk of being upset by evidence. The earliest

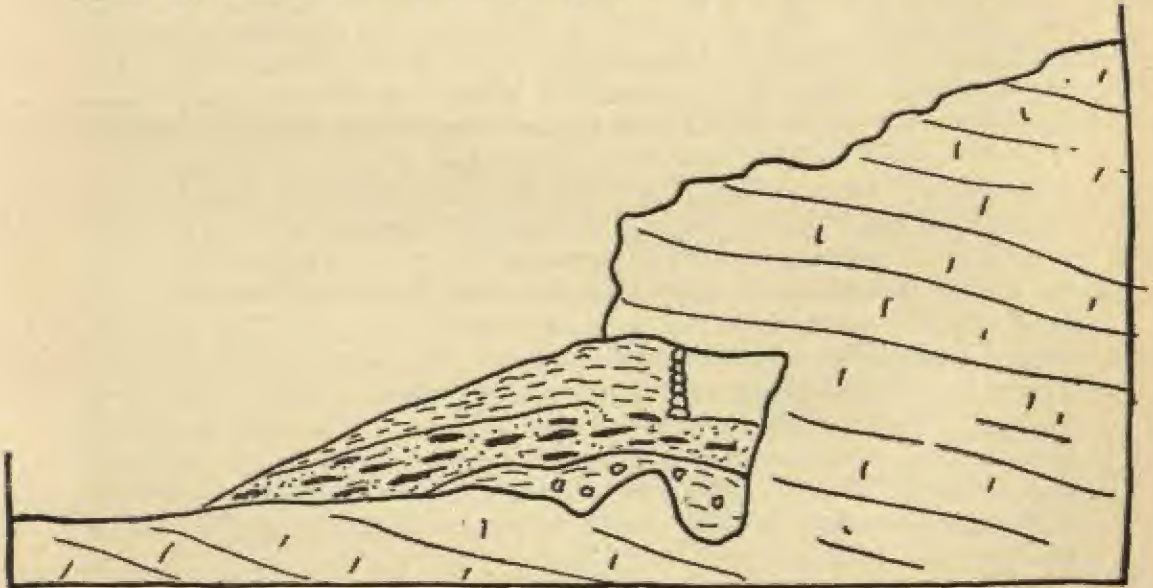


FIG. 1—SECTION OF BURIAL-CAVE AT GOP, FLINTSHIRE
(After Sir William Boyd Dawkins in *Arch. Journ.* 1901, LVIII, 327)

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deliberate burials occurred in the Mousterian period, in caves ; and although connecting links are not numerous, one cannot help feeling that the natural cave must have been the ancestor of the megalithic passage-grave. In all essentials the cave and the passage-grave are the same ; the ' points,' so to speak, of a habitation cave are (1) the ground in front of the mouth, (2) the mouth, and (3) the dark, little used interior. Of these the mouth was the most important, and was often walled off ; and it is natural to suppose that the darker recesses were used for sleeping in at night. These three features correspond fairly well with the typical arrangement of a passage-grave ; and if the houses of the dead were modelled upon those of the living, as is usually supposed, there may be some truth in this suggested evolution ; but there are many difficulties. However this may be, megalithic burial-places were very often—and always in our country—covered with mounds of earth or, in stony country, cairns of stone : they were in fact the first barrows ; so we must consider them. The subject is a very thorny one, and in order to avoid being drawn into argument, I shall avoid problems and keep to a description of facts. The title of this paper suggests that geographical and ethnographical deductions may for once be given second place.

There are two types of megalithic barrow—round and long. In some regions both occur side by side, and it is supposed that they represent the circular and rectangular type of hut respectively. The three classic examples of megalithic round barrows are Gavr Inis, Brittany ; New Grange, Ireland (fig. 2) ; and Maes Howe in Orkney. The newly-discovered mound of Houge Bie in Jersey belongs to the same class. In essential plan these are all identical—a huge mound covering a long flagged passage, leading to a central, or nearly central cruciform chamber ; the whole mound being sometimes surrounded by a circle of stones or a ditch. There are no examples of this type in England except, possibly in a degenerate form, in Cornwall and (more doubtfully) in Derbyshire. It was supposed by Sir Flinders Petrie that Silbury Hill, near Avebury, was of this type. That huge barrow, 130 feet high, might well be a Wessex ' New Grange,' but for the fatal objection that no megalithic burial-mounds of the round type occur in Wessex ; whereas in Spain, Brittany, Ireland and Orkney, in the neighbourhood of the classic examples alluded to, smaller round mounds are abundant. The Professor however, was optimistic, and boldly put his theory to the test of excavation. He dug a hole in Silbury above the spot, south-east of the centre, where, by a just

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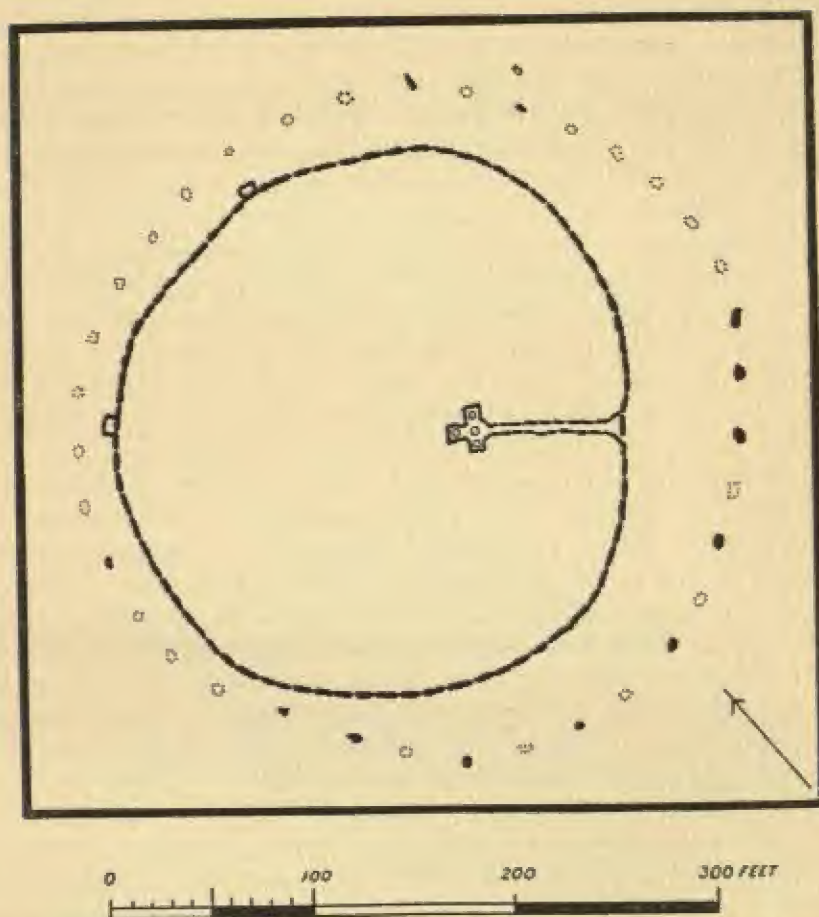


FIG. 2—PLAN OF CHAMBERED ROUND BARROW AT NEW GRANGE, NEAR DROGHEDA, IRELAND
(After G. Coffey in 'New Grange,' Dublin 1912, p. 3)

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analogy, and from observing a slight sinking on the slope, he expected to find the burial-chamber. But alas ! there was no chamber and the theory had to be abandoned.

The long type is called a Long Barrow or Long Cairn. Its varieties are protean. It may be a simple mound of earth, as in Wessex, or a cairn covering stone burial-chambers, as in Oxfordshire and the Cotswolds. It has different names in foreign lands ; but the navetas of Minorca, the Giants' Tombs of Sardinia, and the long, rock-cut tombs so common in Mediterranean lands are all varieties of the same species. Like the round ones these long tombs were intended for collective burial. We may be sure that elaborate rites were enacted at funerals in those far-off days, when the Cult of the Dead monopolized all religious interest. At Belas Knap, a long barrow near Cheltenham, there is a strong hint of human sacrifice ; and the remains of purificatory fires were found within the cairn. Tribute was paid to Weland, the Invisible Smith of the Berkshire Downs, nearly two thousand years after the burial-place was built ; and the custom of leaving twopence there for a horse to be shod survived down to within living memory.

Long Barrows are of earth and stone. Those of earth probably had wooden chambers. The classic example is Worbarrow, which was excavated in 1893 by General Pitt Rivers ; remains of wooden posts were found inside the barrow. The substitution of earth and wood was due to the absence of suitable stone for building chambers. Wherever such stone was present it was used. In some cases it was even transported several miles. In the celebrated West Kennet long barrow near Avebury, the chambers are of sarsens or grey wethers, but the interstices between them were filled up by flat oolitic slates brought there from near Calne—that is the nearest outcrop, at any rate,—seven miles away, and oolitic chips can be picked up on the surface of an unexcavated long barrow on Horton Down, two miles to the southwest. Wiltshire is the classic region of earthen long barrows ; there are about a hundred in the county altogether ; Dorset has about forty, Hampshire about twenty, Berkshire one. Elsewhere they are more rare, but there are some in Yorkshire and three at least in Lincolnshire. However, I am not going to deal with their distribution, for it would lead me on to the causes of that distribution ; and that would suggest a discussion of the relative attractions to neolithic man of a good water-supply and open pasturage, on the one hand, and pearls, amber, jet, copper, flint and rouge, on the other—commodities which (with

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the exception of flint) are entirely absent from the principal long barrow regions.

Three types of chambered long barrows may be distinguished. At first the entrance was made in the east end, and through a portal consisting of two upright stones and a lintel. Through this one went along a narrow passage between uprights, and on either side of the passage were the burial chambers. The whole was covered in by a mound of earth and stones. To this type belong Wayland's Smithy in Berks (fig. 3), several of the Somerset long barrows, and in Gloucestershire Hetty Pegler's Tump at Uley and the Nympsfield barrow close by.

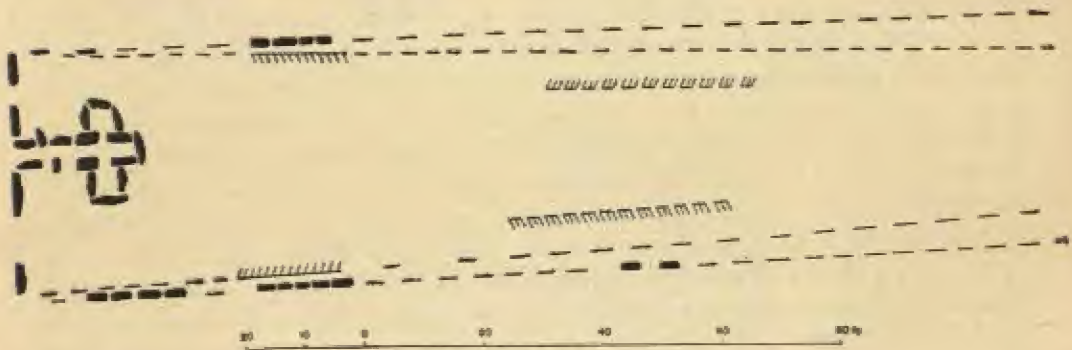


FIG. 3—WAYLAND'S SMITHY
Surveyed by Rev. Charles Overy. 1:400

Later it was found more convenient to enter the burial chambers by a passage opening in the side of the barrow; but a dummy portal was still placed at the east end, leading nowhere. Most of the Cotswold long barrows are of this later 'false passage-grave' type exemplified in fig. 4. Finally, as in the St. Nicholas long barrow, the side chambers degenerated into mere cists without entrances. The long barrows of Brecknockshire belong, for the most part, to this late stage.

It is generally agreed that the makers of long barrows belonged to the Mediterranean race. The evidence of long barrow skulls is quite consistent. This burial-custom continued until the invasion of the beaker-folk, but one must not imagine that the Mediterranean natives suddenly stopped making long barrows the moment the first boat-load of beaker-folk landed. What probably happened was that the beaker-folk conquered them and 'overlorded' them for their own good in the approved Nordic fashion. The makers of Avebury lived on Windmill Hill, in a fortress that can be paralleled only—outside Britain—in

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Germany, especially in that part of Germany from which we know that the beaker-folk came.

The beaker-folk were round-headed and buried their dead in round barrows. In every way they were the exact antithesis of the long barrow people, from whom they differed as much as a German from a Sicilian. Naturally the two races did not get on very well together. Indeed there is evidence of disagreement coming from that stronghold of the long barrow people—the Cotswolds. There is little reason to suppose the beaker-folk ever penetrated into that region, or returned alive if they did. One of them certainly did not; for his brachycephalic skeleton was found under the lintel of Belas Knap. That is also good evidence that long barrows continued to be made after the beaker-folk had arrived.

It was indeed very good for the Mediterraneans to be conquered by the beaker-folk. Not only did this conquest purge them of that senseless cult of the dead on which they wasted their energies—a kind of megalithomania—but it released them from the tyranny of stone in another way, by introducing the knowledge of metal. What happened when this healthy Nordic purge was not administered may be seen in Brittany,

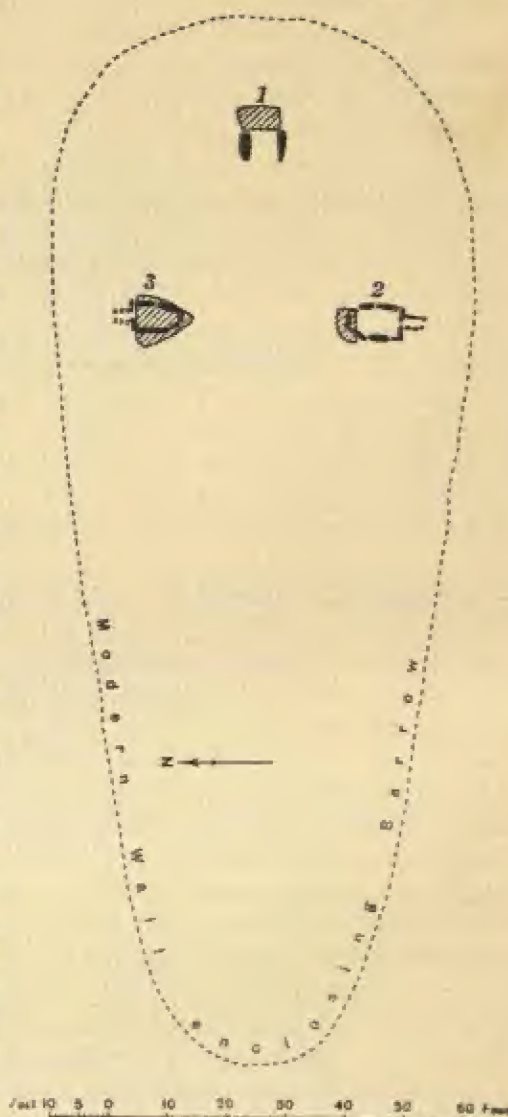


FIG. 4—WINDMILL TUMP, RODMARTON
(After Thurnam, 'Crania Britannica', II, 1865). 1:400

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where progress was petrified by the gloomy preoccupations of tomb-building.

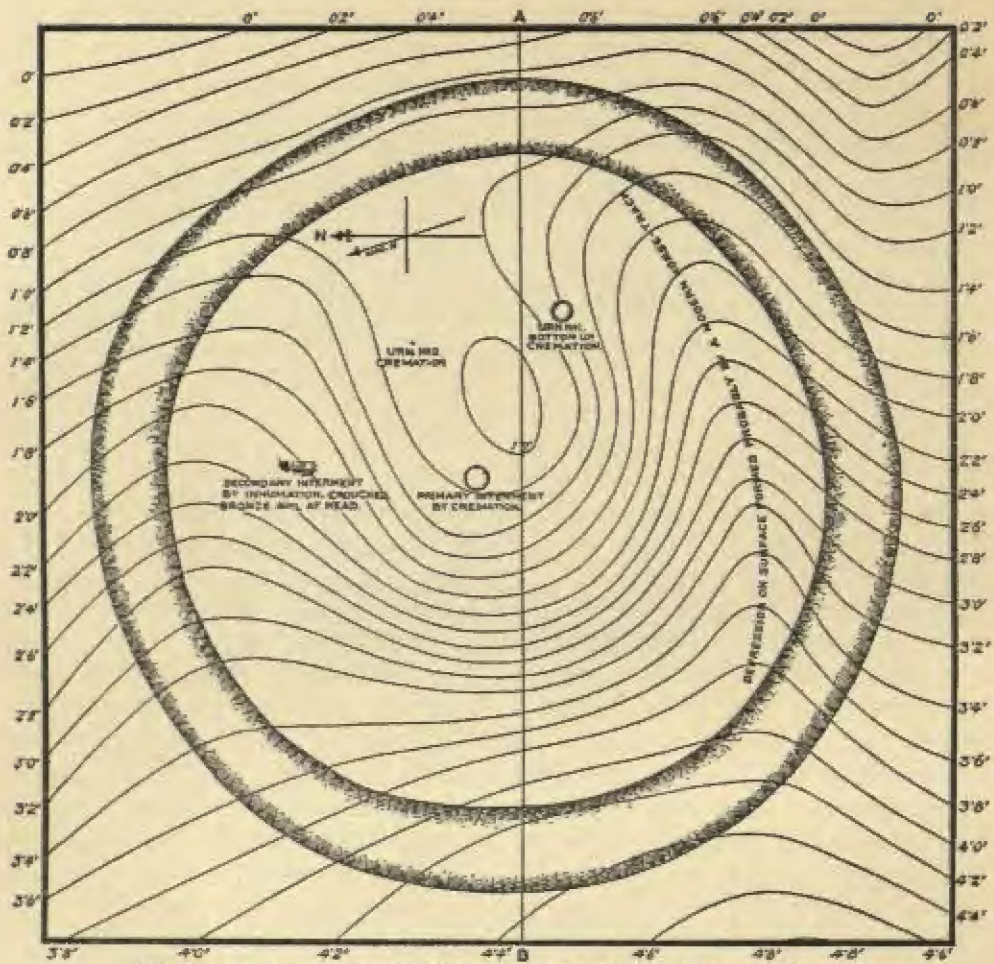
The beaker-folk specialized in round barrows, of which there are many kinds. One form is the Bell Barrow. It consists of a large mound with a ditch round it. Between the foot of the mound and the ditch there is left a narrow shelf or berm of natural ground, and round the outside of the ditch a small bank is cast up. The whole has the appearance of a bell—hence the name, invented by Colt Hoare.

It is certain that all bell barrows belong to the early part of the Bronze Age. They are very common in Wiltshire, and some of them have yielded rich burial goods of gold and bronze. The method of procedure was as follows :—a pit, roughly circular, was first dug in the chalk ; the corpse was then placed in it with the grave-goods. A mound of earth was piled on the top, and last of all, a shallow ditch was dug round and the contents thrown up over the skirt of the mound. It is probable that the digging of the ditch was a ritual performance, for in the case of certain barrows (which on archaeological grounds seem to belong to an earlier date) the ditch was much deeper and very irregularly dug. It seems thus to have originally served a practical purpose—that of a quarry for obtaining the material of the mound. The material of which earthen long barrows were made was certainly derived from the side-ditches which flank it.

This question of the method of construction is rather an important one, but it has been little studied. What led to the abandonment of the earlier practice? One can understand the survival of a shallow ritual-ditch, but it is less easy to see why any change at all should have taken place. In a late bell barrow at Roundwood in Hampshire, I found that the material of the mound consisted entirely of scraped-up soil, dark in colour, and just such as would be obtained from the surface of a ploughed field. If during the long barrow period there were few cultivated fields, and if later they became very common, it might be found easier to obtain the material by scraping up soil than by laboriously quarrying the hard chalk. It must be said however, that so far as superficial observation goes, a great many round barrows seem to be made entirely of quarried chalk.

The ritual-ditch reached its highest development in the disc barrow, which consists of a ditch, nearly always perfectly circular, with a bank generally on its outer side, surrounding a platform of bare level ground. In the centre is a small, low mound of earth, covering (in every recorded instance) an interment of burnt bones. In no

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**PLAN OF BARROW NO. 23, HANDLEY HILL, DORSET.
EXCAVATED IN AUGUST 1893.**

SCALE OF FEET

FIG. 5—TYPICAL EXAMPLE OF BARROW WITH REGULAR (RITUAL?) DITCH
(Reproduced by permission of Captain Pitt Rivers, from 'Excavations in Cranborne Chase', iv, 1898, plate 298)

PLATE II



BARROW IN CRANBORNE CHASE, DORSET, WITH *IRREGULAR DITCH*
 Reproduced by permission of Captain Pitt Rivers, from 'Excavations in Cranborne Chase', iv, 1898, plate 293

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instance has a primary inhumation been found in a disc barrow. The diameter of disc barrows varies, but normally it is about 150 feet. There are two types of disc barrows, but since they seem both to be more or less contemporary, it is hardly necessary to describe the less common type; and indeed no attempt has ever been made to distinguish them chronologically. Sometimes, in the commonest type of disc barrow, there is more than one central mound.

The age of disc barrows is proved by the discovery in them of remains belonging exclusively to the early part of the Bronze Age. They are thus roughly contemporary with bell barrows; but in bell barrows there have been found both beakers and copper knives. These objects are characteristic of the very earliest phase, and as they have never been found in a disc barrow, it is reasonable to infer that disc barrows did not come into fashion until later. The fact too, that the burials in them are invariably cremated points in the same direction.

But we have even better evidence. In twenty-five cases there have been found associated with early Bronze Age burials certain ribbed beads of glass or faience. The age and provenance of these beads is disputed. Sir Flinders Petrie, Professor Sayce, and Dr Hall regarded them as Egyptian, but Sir Arthur Evans has suggested that they may have come from Crete. Opinions differ also with regard to their age. The dates mentioned by Sir Arthur Evans however all fall between 1600 and 1100 B.C., and this covers the dates suggested by others. I hope it may be possible before long to arrive at some more precise estimate, but meanwhile 1400 to 1200 B.C. would appear to be a central date, and one in agreement with the opinions of Egyptologists. The matter is of prime importance for British prehistoric chronology; and since out of the twenty-five separate instances where the beads have been found, no less than five were in disc barrows, it may be concluded firstly, that all normal disc barrows are contemporary, and secondly that their date falls round about 1400-1200 B.C.

The beads in question are sometimes referred to as the 'Stonehenge beads'. But this is due to a misconception. The only reason for associating them with Stonehenge is that they have been found in two separate barrows near Stonehenge. That, of course, proves nothing. It is quite usual to find regimental buttons and empty cartridge cases in the same barrows, but this does not prove that Stonehenge was built by the British army.

The burials in disc barrows are supposed, from the nature of the grave-goods—the supposition is not necessarily correct—to have been

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the burial-places of women. We may, if we like, associate this fact with the known matriarchy of the Picts. It is certainly a fact that the disc barrow is an elaborate kind of burial-place, and one likely to have been used only for important people.

Contemporary with disc barrows are twin barrows, which consist of two mounds with but a single ditch. It has been suggested that these are the burial-places of a man and his wife. There is no evidence to disprove this and it seems not unlikely. Sometimes, however, *three* mounds are included within the ditch. Triple barrows are less common—I can only think of two instances—and do not necessarily disprove the husband and wife hypothesis.

So far I have been dealing mainly with Wessex. What kinds of burial-places were being made elsewhere? In stony countries, instead of digging a pit, they made a cist of four slabs of stone; and instead of a ditch they surrounded the mound with a ring of upright stones. Sometimes the ring of stones was there without the mound. That stone circles were invariably burial-places would be hard to prove: exhaustive excavation of all or nearly all such circles could alone achieve it. But in all cases where such excavation has been undertaken, some remains of a burial have been found in the centre; and one may conclude that, even if they served some additional object, their primary purpose was sepulchral.

It is tempting to suppose that as, in countries where stone is available, it was used for the tomb itself and the surrounding enclosure, so the disc barrow was merely an attempt to reproduce the stone circle in a stoneless country. A burial-pit is certainly a substitute—the only possible one—for a stone cist; for we find even in Wiltshire that, in the regions where sarsen stones occur, stone cists were actually made. That is the case near Avebury, where several sarsen-cists have been found, some of them containing beakers. Moreover the usual ring of stones surrounds the barrow too. It must be remembered that stony countries are the rule, and stoneless ones, like most of Wessex, the exception, in western Europe: and that England was almost the first stoneless country that the beaker-people had met with in their wanderings. In those parts of England where stone occurs they would follow their usual practice; and in others they would conform as closely to it as the altered conditions permitted.

Of the burial customs that obtained here between about 1200 and about 600 B.C. we know very little. Probably many cremation barrows belong to this period. Towards the close of the period, if

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not before, began those invasions of Continental tribes bringing with them, like their 'beaker' predecessors, the knowledge of a new metal—iron. (It may be remarked in passing that every invasion of Britain has brought with it some benefit to counterbalance the misery and destruction consequent upon it). We can detect at least four different varieties of pottery which may be associated with the different tribes who took part in this invasion ; though it must not be imagined that

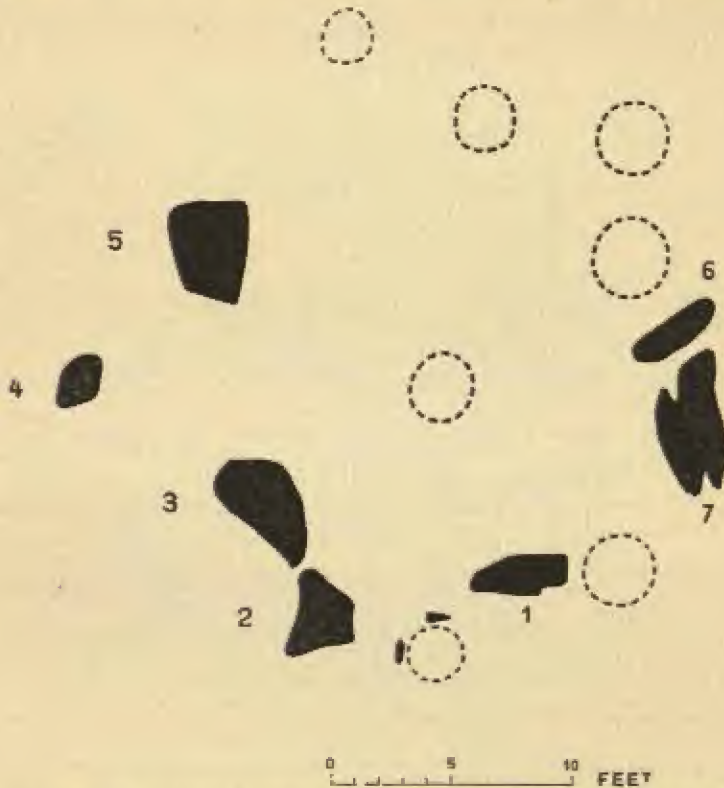


FIG. 6—RING OF STONES (SARSENS) CALLED THE PENNINGS CIRCLE, AVEBURY

The Dotted Circles are depressions where Stones may have once stood

(Reproduced by permission of The Wiltshire Archaeological Society, from a plan by the author, in W.A.M., XLII, 1924, opp. p. 55)

all of these are necessarily contemporary. Barrows were not invariably thrown up over the cremations ; it was a common practice to dig a hole in an existing barrow, and put the cinerary urn with the bones in it. Several barrows, made at an earlier date perhaps, have been found thus 'potted.' The most famous is the first one found—the Deverel barrow near Bere Regis in Dorset. Another was found by Dr Clay in

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1925 on Woodminton Down in south Wilts ; it contained 28 burials in urns, all more or less fragmentary, only 8 being capable of complete restoration.

Urn-fields were an alternative method of disposing of the dead. Sometimes they were near barrows—General Pitt Rivers found a small one on Handley Hill, Dorset, near his Barrow 24. It consisted of 52 pits, each containing burnt bones, and in 47 cases there was an urn as well. The pottery used for this purpose, here and elsewhere, is generally of the finger-tip type, which is coarse and contains a large admixture of pounded flint grit. It is very friable and is the despair of pot-menders. Urn-fields also occur in the Lower Thames basin ; the urns from one at Ashford in Middlesex are in the British Museum.

The finger-tip people invaded Yorkshire, for their pottery has recently been found at Scarborough on the site where later the Romans built a signal station. A still later wave of invaders built barrows—the only Iron Age barrows known in this country. They are called the Danes' Graves and some are still to be seen in a small copse near Driffield in the East Riding. They were excavated by Canon Greenwell, who found in them remains characteristic of the first La Tène period (500–300 B.C.) The barrows are quite small and are placed close together.

The later Iron Age people, whom Caesar found here, buried in urn-fields, the most celebrated being those at Aylesford and Swarling in Kent. It is possible that mounds covered these interments and were ploughed away, but there is no evidence either way.

The Romans occasionally buried in barrows, particularly in the east of England. Roman barrows are peculiar on account of their steep, conical outline. Six—called the Six Hills—occur at Stevenage in Hertfordshire, and there is another at Youngbury in the same county. The Bartlow Hills in Essex are similar, and yielded beautiful enamelled casquets and other objects. There is another on Mersea Island, Essex. Sometimes these barrows contain a brick chamber, and the burnt remains are generally in a beautiful jar of green glass. A fine Roman interment, once possibly covered by a barrow, was found not long ago at Radnage, near Bledisloe in the Chilterns. The contents are in the British Museum and are therefore not likely to be destroyed by fire as were those found in the Bartlow Hills.

There is a class of mound that is sometimes called a barrow, but which seldom, if ever, yields an interment. It consists of a low, flat, rectangular mound rather like a pillow ; there is often a longitudinal

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crease down the middle, and sometimes grooves or creases at right angles to and on either side of the central one. These mounds often occur near and within hill-top camps, but they may be of more recent date. One of the best groups is that on Steeple Langford Cowdown, near Yarnbury in Wiltshire. No satisfactory explanation of the purpose of these mounds has ever been put forward. It has been suggested that they are artificial rabbit warrens, but I have never seen a rabbit using one,⁴ and such temptations to burrow seem rather superfluous. One such in Hollybush Camp on the Malvern Hills has been twice excavated without providing a solution of the problem.

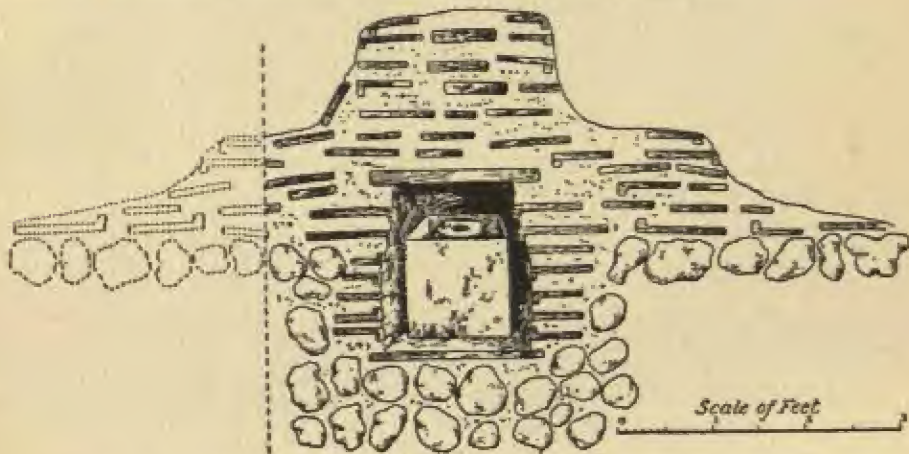


FIG. 8—SECTION OF TOMB IN ROMAN BARROW ON MERSEA ISLAND, ESSEX
(After S. Hazledine Warren in *Trans. Essex Arch. Soc.* xii, 1913, p. 129, by kind permission)

The Saxons certainly made barrows, and the best example near Oxford is the Asthall barrow, recently excavated by Mr Thurlow Leeds. It is a very big mound and the interment was by cremation, so that the valuable grave-goods were much damaged. No doubt such burial was reserved for important people, then as in earlier times, for the usual method of burial during the period was either in flat cemeteries, or as secondary interments in prehistoric barrows. It is quite common to find these secondary interments in all the prehistoric barrows described; they are generally at no great depth in the body of the mound. Such remains have been found in Wiltshire in disc barrows as well as in more bulky mounds, and in that county they are much more common than flat cemeteries. In the Cotswolds secondary interments of the Anglo-Saxon period have been found in the long barrows at Swell, Crawley and Lyneham.

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On the Berkshire downs is a gigantic mound called now Scutchamer Knob, which is the modern form of *Cwichelmes hlew*. It is two miles from West Ilsley, but is best approached from West Hendred and Ginge on the north. This mound is mentioned in the Anglo-Saxon Chronicle under the year 1086, where it is said that the Danes went along Ashdown, that is to say, along the Ridgeway, to Cwichelmeshlew. Professor Stenton thinks it highly probable that it was the burial-mound of King Cwihelm the first of Wessex.¹ I do not know whether any attempt has been made to excavate this barrow systematically. A large amount of it has been removed—there is a gaping hole on the north side; but it does not follow that this is the result of archaeologists' work—the chalk is more likely to have been removed by farmers. If so, and if the floor of the barrow has not been reached, it would be worth exploring, and the removal of so much of the mound already would make this less difficult than usual. A similar mound may have existed at Challow near Wantage—the hill of Ceawa, according to Professor Stenton.

A celebrated find of gold jewellery was made in a barrow in Taplow churchyard. I do not know whether this barrow was proved to be of Anglo-Saxon construction, but it is probable that it was, for, as has recently been pointed out,² the name of Taplow originally signified the Hill of Taepa; and by analogy we may conclude that by his 'hill' was meant his barrow. (The difference in connotation between *beorh*, barrow, and *hlaew*, hill, is unknown, but I am inclined to think that *hlaew* generally meant a *big* hill, both natural and artificial).

In Kent are a number of Saxon barrows. Like the Danes' Graves, they occur in large numbers, set close together, and are small. There is a group in Greenwich park, and another on Barham Downs. Both groups have been excavated and found to contain burials of the pre-Christian period (600–450 B.C.) I strongly suspect that mounds would have been visible over the graves in some of the other so-called 'flat' cemeteries, did not these nearly always occur on ploughed land. The mounds are so small that they would rapidly disappear by ploughing; and it must be remembered that, the site of the Saxon settlement being generally the same as that of the medieval and modern village, the

¹ Place-names of Berkshire, 1911, p. 31.

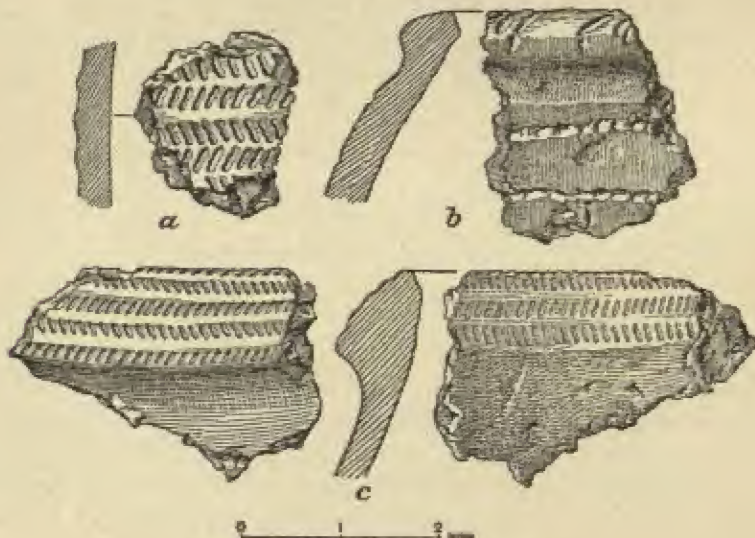
² Buckinghamshire Place-names (English Place-name Society, vol. II, Cambridge, 1925), p. xiv.

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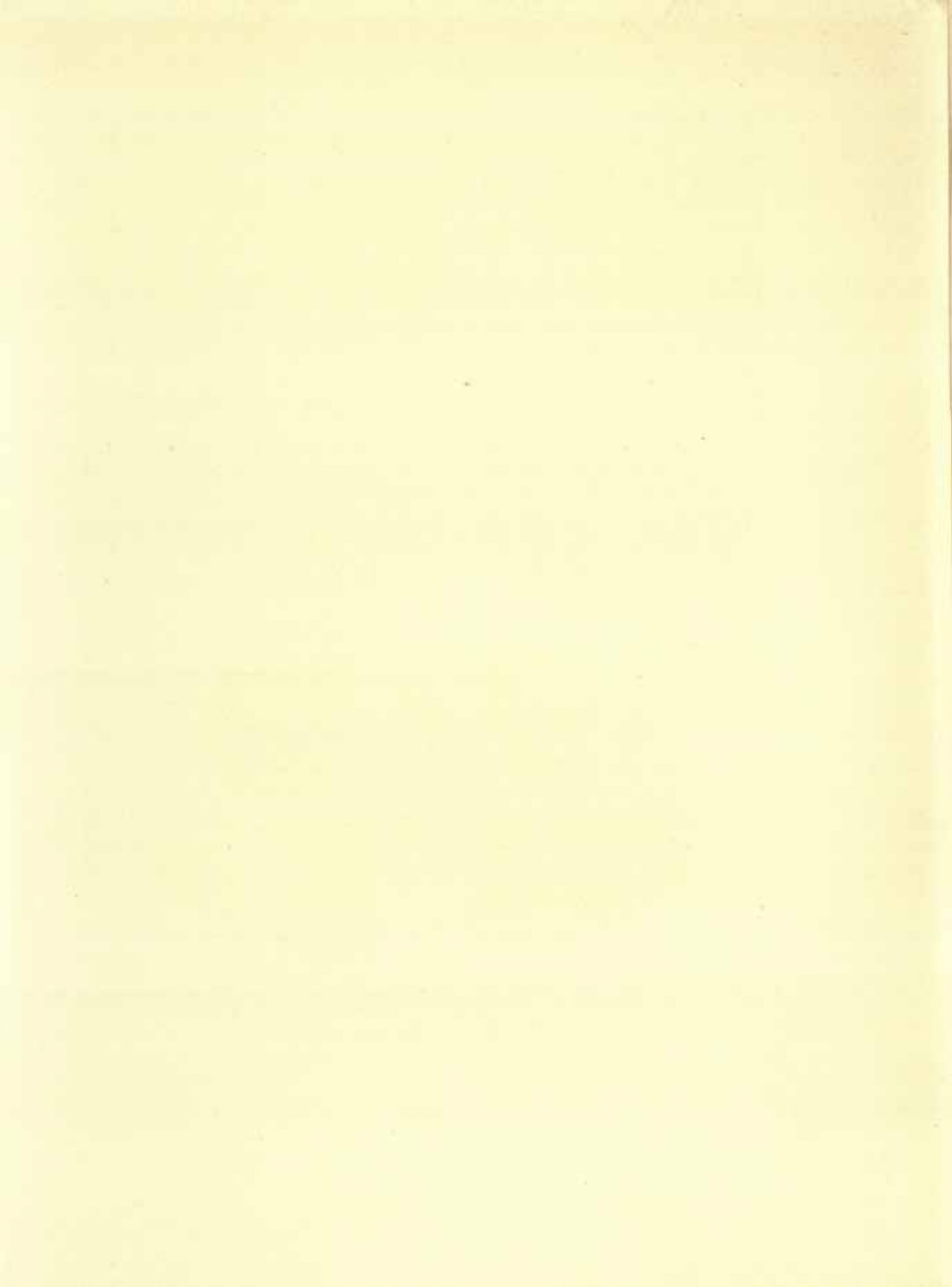
site of the earlier cemetery was nearly always included within the common fields of the township.

Castle Mounds are often mistaken for barrows, and it is often very difficult to tell them apart. A castle mound usually has a courtyard or bailey attached to it, the pair resembling a loaf of bread in plan. In one instance, in Wales, a mound served both purposes. It was undoubtedly used as a castle mound, but it contained in its centre a stone cist with a prehistoric burial. The tops of castle mounds were fortified by a wooden keep or castle, or by a stone wall, whose hard foundations may sometimes be detected round the rim. The centre is sometimes hollow, and there is generally a deep, wide moat, with a causeway for the entrance. If the mound is a barrow, the surrounding ditch is not, as a rule, so big.

Barrow-burials may be said to be extinct in this country, unless the churchyard gravemound can be included within the term. The last recorded instance was the secondary interment of a horse in a bell barrow on Farley Mount in 1731! But the subject of animal-burial opens up a wide, untrodden field of inquiry, and must therefore be postponed to another occasion.



POTSHERDS FROM BURIAL-CAVE AT GOP
(By permission of Sir William Boyd Dawkins)





THE 'BARBERINI IVORY' IN THE LOUVRE

facing p. 435

The Theory of Historical Cycles

Note on the Illustrations

Hegeso (plate II) is a lady sitting in a chair; her bodily act of sitting, her physical gestures, are the artist's subject. The emperor (plate I) of the Ivory is seen by the artist not as a gentleman sitting on a horse, for his bodily action is not emphasized; but as the Emperor, the centre, in a spiritual sense, of his world. The subject of the composition is not actual gestures, but the thought which these gestures symbolize. Similarly the Greek vase-painter (plate III) is drawing a physical body, flying through material air; the sculptor of Bellicia (page 438) is depicting, as best he can, the ecstasy of a soul.

The Theory of Historical Cycles

II. CYCLES AND PROGRESS

by R. G. COLLINGWOOD

WHEN Huckleberry Finn's religious education was taken in hand by the Widow and Miss Watson, his impressionable mind was at first strongly affected—in his own words, he was all in a sweat—on hearing the story of Moses. Later, his interest in Moses cooled off, because Miss Watson let out that Moses had been dead a considerable time, and Huckleberry Finn, as he explains, took no stock in dead men.

It was a very naïve reaction to history ; but naïve reactions often reveal truths which are blurred by a more sophisticated attitude, and must somehow be recaptured before we can see things as they are. Huckleberry Finn may here stand as the babe or suckling out of whose mouth the historian is to learn wisdom.

Moses is dead, and there is no need to get in a sweat about him. It is nobody's business to give him advice, or to advance or frustrate his schemes ; nobody is called upon to work for him or against him, to excite himself about choosing to be pro-Moses or anti-Moses, to allow his feelings to be inflamed with partisanship or opposition, or even to commend or regret, applaud or condemn, label as good or bad. There is no sense in using terms like good and bad except of persons or things, that come into practical relations with one's own will. When Margaret Fuller announced that she 'accepted the universe', Carlyle remarked, 'Gad, she'd better'; meaning that there was no other sensible course to pursue ; you couldn't reasonably call the universe good or bad, because you couldn't be 'for' it or 'against' it ; the universe is not in need of our partisanship, nor in danger from our hostility ; all it asks of us is that we should see it as it is, face it, accept it. Now that is all Moses asks of us. He is dead ; the battles which he fought have long ago been won and lost, the causes that interested him have long ago been heard and judged. His work is done ; friends cannot help him, enemies cannot hurt him ; advocacy and malice are

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alike, for him, powerless. The only thing left for us to do is, if we can, to understand him : to 'accept' him for what he was, to see how he lived and what he did when he was alive.

Does this mean that the historian is to give up using the words good and bad, to forget his moral principles and lose his sense of values, to renounce, in a word, the whole habit of getting in a sweat ? In a sense, yes ; in another sense, no. He certainly ought to give up labelling his *dramatis personae* as good and bad. Indeed, today no decent historian would hesitate about this ; he gave it up long ago, and it only lingers in the slum-districts of historical thought—the dark places where history of a sort is bullied into the service of political and religious propaganda. But this does not mean forgetting his moral principles. On the contrary, it means remembering them with a quite new vigilance, but applying them not to the facile praise and blame of others—who are not in a position to reply—but to the harder task of controlling his own conduct. For, *qua* historian, he has a duty to perform ; his duty is to discover the truth and tell it without fear or favour ; and as a matter of fact the errors into which historians fall are never due to mere honest ignorance but always to some failure in their own sense of historical duty, some unfounded assumption or misplaced trust, or the cruder sin of anxiety to make a case or haste to finish writing a book. The historian who gets nearest to the truth is the historian who spends most pains in examining his conscience.

It may be suggested that we have here a principle capable of wider extension. The modern historian does not call Henry II a bad man because he quarrelled with Becket ; and he would not admit that this forbearance betrays a weakness in his own moral standards ; on the contrary, he would say it was a sign of moral soundness, of a highly moral determination to do Henry justice. Now why should we not extend this principle, say, to the history of art ? Suppose someone to argue that a given period of art-history is a bad period, because its artists no longer show the same exquisite sensitiveness as those of an earlier age ; may we not reply, ' it is your business, not to deplore the lack of aesthetic sensitiveness in others, but to display it in your own person, by discovering the beauties of this art to which you have shown yourself blind ' ?

Two instances will make the point clear. In the eighteenth century, people of taste, who were not afraid to speak their mind, used the strongest possible language in describing the ugliness, the clumsiness, the tastelessness, of medieval architecture. Smollett, who was

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typical of his age, speaks of York Minster in terms expressive of sheer disgust.¹ He was perfectly sincere ; and his very emphasis shows that it was a question not of an inartistic person's lack of interest in art, but of a person interested in architecture who feels that Gothic architecture is a blot upon the face of the earth. Two hundred years later, Professor Petrie² describes the sculpture and architecture of the thirteenth century as the culmination, so far as concerns these arts, of all modern civilization ; as an achievement intrinsically almost equal to that of Graeco-Roman antiquity. Precisely where Smollett found the deepest degradation of modern art, Professor Petrie finds its loftiest triumph. Each writer fairly represents the general taste of his time, and each is a sincere and qualified spokesman of that taste. Which is right ?

To say that Professor Petrie is right because he is our own contemporary would be to trust altogether too completely in the maxim *les absents ont toujours tort*, and involve the uncomfortable corollary that two hundred years hence, or less, Professor Petrie and ourselves will all be as wrong as Smollett is today. But how else are we to answer ? Leibniz said that all philosophers were right in what they assert and wrong in what they deny ; may we say that critics are always right when they assert the value of a period and always wrong when they deny it ? At that rate, Smollett would be right to admire classical architecture, and right to admire the neo-classic of his own times, but wrong to deny all merit to medieval Gothic. The degradation of medieval art would thus be simply a blind spot in the eye of the beholder. If now we apply the same hypothesis to Professor Petrie, we find that, for him, the period of degradation comes between the classical and the medieval, and is represented by the incised figure of Bellicia on an early Christian slab in Rome.³ Let us assume—it might be denied—that this slab is a fair and favourable example of an age which is also that of the Throne of Maximian and the consular diptychs ; and then let us ask, is it

¹ *Humphry Clinker* (Works, ed. 1806) p. 200. After describing the interior as a vast charnel-house, he goes on, 'the external appearance of an old cathedral cannot be but displeasing to the eye of every man who has any idea of propriety or proportion', and especially objects to the 'long slender spire', which 'puts one in mind of a criminal impaled'. It is safe to attribute Matthew Bramble's opinions to Smollett himself.

² *Revolutions of Civilisation*, 1922, p. 60 etc.

³ *Revolutions*, p. 6 (fig. 2), p. 59.

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possible that the utter badness of this art, like the utter badness of York Minster, depends merely on the critic's lack of sympathy? Is it conceivable that at some future date this Byzantine way of doing things (to give it that name for the sake of a name) may come to be recognized as a fundamentally right and good way, as the Gothic way of doing things came to be recognized by the work of the Romantic movement?

To ask the question is to answer it. Already, since Professor Petrie's book was written, the movement of fashion has set decisively



THE GRAVE STELE OF BELLICIA
(From Agincourt's *History of Art*, 1823, ii, pl. 7)

towards Byzantine art, and plenty of aesthetes today will turn back to the picture of Bellicia as to one of the most impressive things in the book. Crude it is; unskilful; anatomically imperfect (so, for that matter, is the Ludovisi throne); yet the vigour of its drawing, the purposeful economy of its line, the intense and rapt expression of the

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THE STELE OF HEGESO, ATHENS

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full face and the upward gesture of the transfigured arms, give it an unearthly beauty that is not to be compared with the earthly beauty of the stele of Hegeso⁴—not as superior, nor as inferior, but as different. Here Spengler has improved upon Petrie ; Byzantine art, which for Petrie seems to be a mere aberration, a trough between waves, a phase whose only qualities are negative qualities, varying kinds of badness, has become for Spengler a positive movement, authentically and eloquently expressing its own proper ideals.

Where the eighteenth century saw a trough, Professor Petrie sees a wave ; where Professor Petrie sees a trough, Dr Spengler sees yet another wave. Where is this process to end ? Are there really an infinite number of waves, all overlapping each other, so that by the time one has sunk into its trough, its place has been taken by another, or quite a number of others successively ?

'The dark ages', says Dean Inge, in his lecture on the Idea of Progress, 'knew that they were dark'. Did they ? Did the Venerable Bede, and the carver of the Bewcastle cross, and John the Scot, called Eriugena, know that the spirit of their time condemned their search for knowledge and beauty to futility ? There is a sense in which all human effort is futile, and every age dark ; the greatest of Venetian painters died full of years and fame with on his lips the words : *è faticoso lo studio della pittura, e sempre si fa il mare maggiore* ; and Newton's comparison of himself to a child on the seashore might be taken as evidence that the classical age of modern physics was a dark age and knew it. But the darkest age is not so dark that men cannot see the next step before them ; and the lightest age is no lighter.

Not only are there no dark ages, except in the sense in which every age is dark, and in the sense of ages which this or that historian dislikes and misunderstands, but there are, with the same two reservations, no decadences.

In history, *tout lasse, tout passe, tout casse* ; everything decays, and all movement is a movement away from something, a loss of something won, a withering, a death. The growth of the steamship is the passing-away of that splendid thing, the sailing-ship ; the rise of fire-arms is the decadence of archery ; the rise of Christianity and the unearthly beauty of Bellicia is the death of Paganism and the earthly beauty of Hegeso. And it is perfectly correct to speak of the fifteenth century as the century of the decline of archery, of the sixteenth

⁴ *op. cit.*, fig. 1.

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as the century of the decline of the manuscript book, of the seventeenth as that of the decline of polyphonic music, of the eighteenth as that of the decline of absolute monarchy, and of the nineteenth as that of the decline of the sailing-ship. It would seem, therefore, that European civilization, expressing itself as it does through these various organs, has been dying by inches for an unconscionable time. Surely it owes a word of apology to the prophets gathered round its death-bed; if not in the style of King Charles, at least in that of Socrates, when to his friends' tearful question 'where shall we bury you?' he replied 'where you will, if you can catch me'. For this dying by inches is merely a synonym for life; when archery, or counterpoint, or the full-bottomed wig, shows symptoms of decay, that merely proves that the spirit of man is no longer in it; it is not here, it is risen; it has passed into another vehicle, and the mourners who bewail its death are all unaware that it is recreating itself in a new form beneath their very eyes.

In that sense, every age is an age of decadence. The Romans of the great age of Caesar were right enough to lament the lost *mores maiorum*; they saw that in the splendid blossoming of the genius of their race something had perished; some moral quality, never to be replaced, whose loss could never be quite compensated, was gone. So the Athenians of the age of Phidias, had they cared for history as much as the Romans, might have known that their Maidens of two generations ago had a delicate and cryptic beauty that no Phidias could ever recapture. But, it is constantly maintained,—and this is the essence of every cyclical theory of history—some ages are ages of decadence pure and simple, ages of mere decadence, periods of decay *par excellence*. Michel Angelo, doubtless, could not have carved the kings of Chartres, if he had tried; but he could do something as good, or better. Thorwaldsen could not have carved the tomb of Lorenzo; but also, he could not do anything as good. Therefore the decadence of sculpture sets in at some time after Michel Angelo, and has made visible progress by the nineteenth century.

The answer to this is that though Michel Angelo and Thorwaldsen are both called sculptors, they were not trying to do the same thing, and therefore the question which did it better does not arise. If we take a single art and study two different phases of its development, we always find them differentiated by a difference of the ideal aimed at. For instance, early Renaissance architecture aims at emphasizing the structural lines of the building, the lines of thrust and stress; it makes its patterns out of these lines, so that the building seems to

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GREEK DRAWING FROM A VASE IN THE ASHMOLEAN MUSEUM

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have its bones drawn on its surface. Baroque architecture, on the contrary, growing directly out of early Renaissance, deliberately conceals the bones of the building and revels in curved and twisted lines whose purpose is precisely to contrast with the lines of thrust which the architect and the intelligent spectator know to be there. Hence Baroque appeals to a different kind of mood, talks in a different language, strives after a different ideal, from early Renaissance. Just as Baroque sculpture, in Bernini, delights in forgetting the hardness and brittleness of stone, and employs its virtuosity to make its marble soft like flesh, pliant like cord, or vibrant like foliage, so Baroque architecture deliberately conceals the engineering of its structures and makes them look as if they were moulded in a plastic material, and crowned with domes as imponderable as the rising moon. To say that one or other of these two ideals is inherently better than the other, to call this, in a derogatory sense, primitive, or that decadent, is to betray a merely personal predilection ; or less indeed than personal, because certain not to survive honest personal scrutiny of the work supposed inferior. Once you come to see what the supposedly decadent school is driving at, you see that it has a legitimate and genuine problem of its own and is handling it in the only possible way. But before you have come to see that, you can only account for the facts by a theory of mere decadence : by supposing that the later people were trying to do the same thing as the earlier, but were unable to do it so well. This theory, it may be said without hesitation, is always false. It always shows failure to understand what the later people were driving at. To take a few examples : modern music may be called decadent relatively to Bach because no modern musician has the technical skill to write a Bach fugue. But no modern musician wants to ; he wants to handle masses of orchestral colour, and by comparison with the orchestral colour-composition of Richard Strauss, that of Bach is crude to absurdity. Anglian sculpture may be said to decay after the Bewcastle cross ; but the later sculptors were not trying, and failing, to reproduce the linear filigree-work of the early style ; they were trying to move away from it to a style of broad poster-like effects,⁵ to make a design that would 'carry' across a churchyard ; and from that point of view they improved vastly on the Bewcastle artist's achievement. Professor Petrie points to the decay in the drawing of the hieroglyphic hawk in the sixth dynasty ; but his examples suggest that the so-called

⁵ W. G. Collingwood, *Northumbrian Crosses*, p. 49.

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'decadent' hawks are really graphic symbols far more convenient to the writer's hand than the naturalistic pattern which preceded them. The artist has stopped drawing and begun to write ; or rather, he has ceased to allow his draughtsmanship to distract him from the work of writing.

From this point of view it is desirable to bestow a glance on the idea of progress.* In its crudest form—a form in which probably no one has ever maintained it—the idea of progress would imply that throughout history man has been working at the same problem, and has been solving it better and better. Now this is not wholly untrue. There is a sense in which, in any department of human life—politics, for instance, or poetry—there is only one single problem, constant throughout all ages. And if anyone asks why we do not revive the Greek city-state, we may fairly answer that it has been tried, and has served its turn, and we think we can do better than that nowadays. To say that, is to commit oneself to the doctrine of progress ; not a mechanical or automatic progress, but a progress which is nothing but the corporate life of mankind remembering and learning by its own past ; refraining from putting back the clock not because it cannot but because it will not, because it thinks the present, with all its drawbacks, better than anything it knows about the past.

Justice is not always done to this idea. There is more in it than is recognized by those—generally people with no very deep interest in history—who idealize this or that phase of the past and, because they only know its brighter side, think they would prefer it to the present ; or by those utterly unhistorical minds that think they can eat their cake and have it too, that they could have Periclean Athens without the massacre of Melos and the Middle Ages without the Black Death. There is probably no one, deeply versed in any period of past history, who, if a fairy offered him the choice of going to live in that period or continuing to live in the present, would not prefer to live in the present.

But the choice cannot be offered, and the problem cannot arise. Moses is dead ; and because the past is past, we cannot rationally either praise it at the expense of the present or decry it by comparison with the present. We ought not to call it either better than the present or worse ; for we are not called upon to choose it or to reject it, to like it or to dislike it, to approve it or to condemn it, but simply to accept

* J. B. Bury, *The Idea of Progress*, gives an invaluable account of the growth and development of the idea.

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it. In one sense, the problem of politics is always the same ; but there is an equally important sense in which it is always different. At one time the problem may be how to impose on a centrifugal society of feudal barons a single law and the centralized government of a single king ; at another time, it may be how to create, in a too centralized country, bureaucracy-ridden and apathetic, some kind of local political initiative. These different problems call for different solutions, and it is meaningless to assert that the system of local government which meets the latter situation is either better or worse than the strong personal monarchy which meets the former. Each is, so far as it succeeds, absolutely the right solution for its own problem, and not relevant to any other. People with no eye for the intricacies of an actual political situation often deplore the 'sentimental' ideals of modern democracy, and sigh for the strong hand of sixteenth-century monarchy ; not realizing that modern democracy can afford to assert freedom as it does precisely because the nations that accept its ideals have thoroughly learnt the lesson of obedience to law, and are now in more danger from despotism than from anarchy.

The business of the historian is to discover what problems confronted men in the past, and how they solved them. These problems were always in one sense identical with each other and with his own, and in another sense all different and unique ; thus in one sense all history is one, and in another sense it is composed of an infinite number of distinct and at least provisionally separable episodes. But however much an historian insists on the unity of history, it is impossible for him to deny its plurality, the gulf between any two phases in the past, due to mere lapse of time, which creates changed circumstances and therefore demands different ways of reacting to them. And however much he insists on its plurality, there is still some unity running through it in virtue of which he calls it all history ; it is held together subjectively in the unity of his own historical thought, even if all other bonds fail. But the objective bond of history is continuity. This means that the solution of one problem is itself the rise of the next. Man is not confronted by changing circumstances outside himself ; or if he is, that belongs to the mere externals of his life. The essential change is within himself ; it is a change in his own habits, his own wants, his own laws, his own beliefs and feelings and valuations ; and this change is brought about by the attempt to meet a need itself arising essentially from within. It is because man is not content to react automatically to the stimulus of nature that he is man,

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and not a plant or a mere animal ; his humanity consists in his self-consciousness, his power to mould his own nature, which comes simultaneously with his awareness of that power. Man's action is the result of his dissatisfaction with himself as he is ; the result of the action is the creation of a new self, and this new self gives rise to a new problem, and so for ever. This succession of problems, each solved in the only way in which it can be solved, because solved by the output of all the powers at the agent's disposal, is the course of history. The historian may not always be able to see it so, but that is the way it always happens. Now such a course of events may be truly called a progress, because it is a going forward ; it has direction, everything in it proceeds out of what has gone before and could not have happened without the occurrence of its past. Every detail of the past is somehow necessary to the being of the present, and thus the present is truly built upon the past.

But though history is in this sense a progress and nothing but a progress, it cannot be so in any other sense. No one of the phases through which it moves is any better, or any worse, than any of the others. In each phase, men found themselves confronted by a unique situation, which gave rise to a unique problem, or the eternal problem in a unique form ; in each phase, they did their best to solve this problem, for their whole life consisted simply in living, living under the peculiar circumstances which made life a problem of a peculiar kind. To live was to solve that problem, the condition of surviving until the problem changed ; to die was to bequeath a different problem to their successors.

So far as we can see history as a whole, that is how we see it : as a continuous development in which every phase consists of the solution of human problems set by the preceding phase. But that is only an ideal for the historian ; that is what he knows history would look like if he could see it as a whole, which he never can. In point of fact, he can only see it in bits ; he can only be acquainted with certain periods, and only competent in very small parts of those periods. It is no blame to Smollett that he dislikes Gothic ; he has not had time to study it ; that is to say, his civilization has not had time. Give it time, and it will turn to Gothic and ' discover ' it, and an infinity of other things too. For humanity studies its history somewhat as Tristram Shandy wrote his life ; it takes two years to write the history of a day ; but humanity can do what the individual writer cannot, and—subject to the maintenance of life on the planet—pursue the process *ad infinitum*.

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At any given moment, therefore, the historian can only present an interim report on the progress of historical studies, and there will be gaps in it. These gaps will appear as breaches in continuity, periods in which the historian loses track of the development. Necessarily, therefore, the history of these gaps will appear an irrational history, a history of muddle and failure and misdirected energies, the history, in a word, of a Dark Age. It may be objected that the gaps ought to appear as mere blanks; not as an irrational history, but as the absence of any history whatever. This would be so, if the historian's ignorance concerning these periods were complete; but in point of fact there are many things, at any given moment in the advance of our knowledge, concerning which we know just enough to make them appear puzzling and unintelligible. This is so in historical studies, as elsewhere. Smollett knew enough about the Middle Ages to know that they had a taste in buildings very different from his own; not enough to see why they had that taste. His condemnation of the Middle Ages as a period of decadence was simply a confession that his own medieval studies—or rather, those of his entire generation—were in an unfinished and unsatisfactory condition.

In this condition, we see history split up into disconnected episodes, each episode forming a relatively intelligible whole, separated from its neighbours by dark ages. That is the point of view from which we see history in cycles. Each period with which we are tolerably acquainted, each period which we understand well enough to appreciate the problems and motives of its agents, stands out as something luminous, intelligible, rational and therefore admirable. But each period is an island of light in a sea of darkness. If we ask why it arose out of barbarism, and why it relapsed into barbarism, we cannot answer; and the reason is that if we knew enough to answer the question we should cease to ask it; for if we knew exactly how the Roman Empire (for instance) declined and fell, what it changed into and how, then the Roman Empire would be to us no longer an island of light in the midst of darkness; the light of our own historical knowledge would have illuminated the Dark Ages and they would no longer appear as dark; we should see that the Roman Empire, instead of simply disappearing, changed; that its outward forms died, while the spirit that had filled them was growing up with unimpaired vigour to find expression in others no less worthy of itself. But so long as we do not know this, so long as we have not yet learnt what the men of the Dark Ages were driving at, we shall necessarily

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continue to think either that they were driving at nothing or that they were trying to be Romans, and failing.

The cyclical view of history is thus a function of the limitations of historical knowledge. Everyone who has any historical knowledge at all sees history in cycles; and those who do not know the cause think that history is really built thus. When they come to settle the exact position and rhythm of the cycles, no two exactly agree; though a certain measure of agreement is found among contemporaries, owing to the fact that the historical knowledge of a given generation, and therefore its historical ignorance, is to a great extent common property. Hence it is easy to believe in a general agreement, and to suppose that the differences of opinion are mere matters of detail⁷ which the advance of scientific history will dispel. That belief is a sheer illusion. A comparison of views based on a wider induction, like our comparison between Smollett and Professor Petrie, will show that the divergences go down to rock-bottom. And it thus becomes reasonably certain that further advances in knowledge will not remove the discrepancies but will cause them to reappear in ever fresh places, constantly upsetting the fundamental valuations on which each successive system of cycles was based. Some system of cycles there must always be for every historical student, as every man's shadow must fall somewhere on his own landscape; but as his shadow moves with every movement he makes, so his cyclical view of history will shift and dissolve, decompose and recompose itself anew, with every advance in the historical knowledge of the individual and the race.

⁷ Thus Messrs Goddard and Gibbons (*Civilisation or Civilisations*, 1926) set out confessedly to popularize Spengler, but announce without apparent misgiving that 'it is not always possible to accept his interpretations' and in fact modify his scheme to taste.

Notes on the Types of English Villages and their Distribution

by WILLIAM PAGE

LITTLE has been done towards solving the problem of the Saxon settlement of England by studying the types of villages and their distribution. Professor Maitland saw the importance of the subject and pointed out how valuable in this respect was the ordnance map 'that marvellous palimpsest which under Dr Meitzen's guidance we are beginning to decipher'.¹ Helpful, however, as the ordnance maps are, they cannot be read alone, a knowledge of the archaeology, history and topography of the district under review is a necessary equipment for such an investigation. The remarks here made are tentative and are offered in the hope they may be an incentive to others with local knowledge to examine the evidence of their districts.

Professor Maitland, following Dr. Meitzen and others, has adopted two main types of settlements, namely, the scattered or dispersed, and the nucleated or clustered. These two types probably comprehend all forms of settlements, but certainly the nucleated type and possibly the scattered type, show many variants which it may be well to indicate before a methodical study of the subject can be made. I have elsewhere suggested the following classification of English towns and villages which will no doubt require modification and amplification but may meet a want for a preliminary inquiry; (1) scattered or dispersed settlements, (2) nucleated or clustered settlements off lines of communication, (3) nucleated settlements on lines of communication, (4) ring-fence settlements, (5) towns with bridge heads and double towns, (6) towns of gridiron plan, (7) towns of spider's web plan, (8) Bastide towns. Except for the first of these classes all of them are nucleated or clustered, and to this wider division I propose to devote my attention. It may perhaps be pointed out, however, that

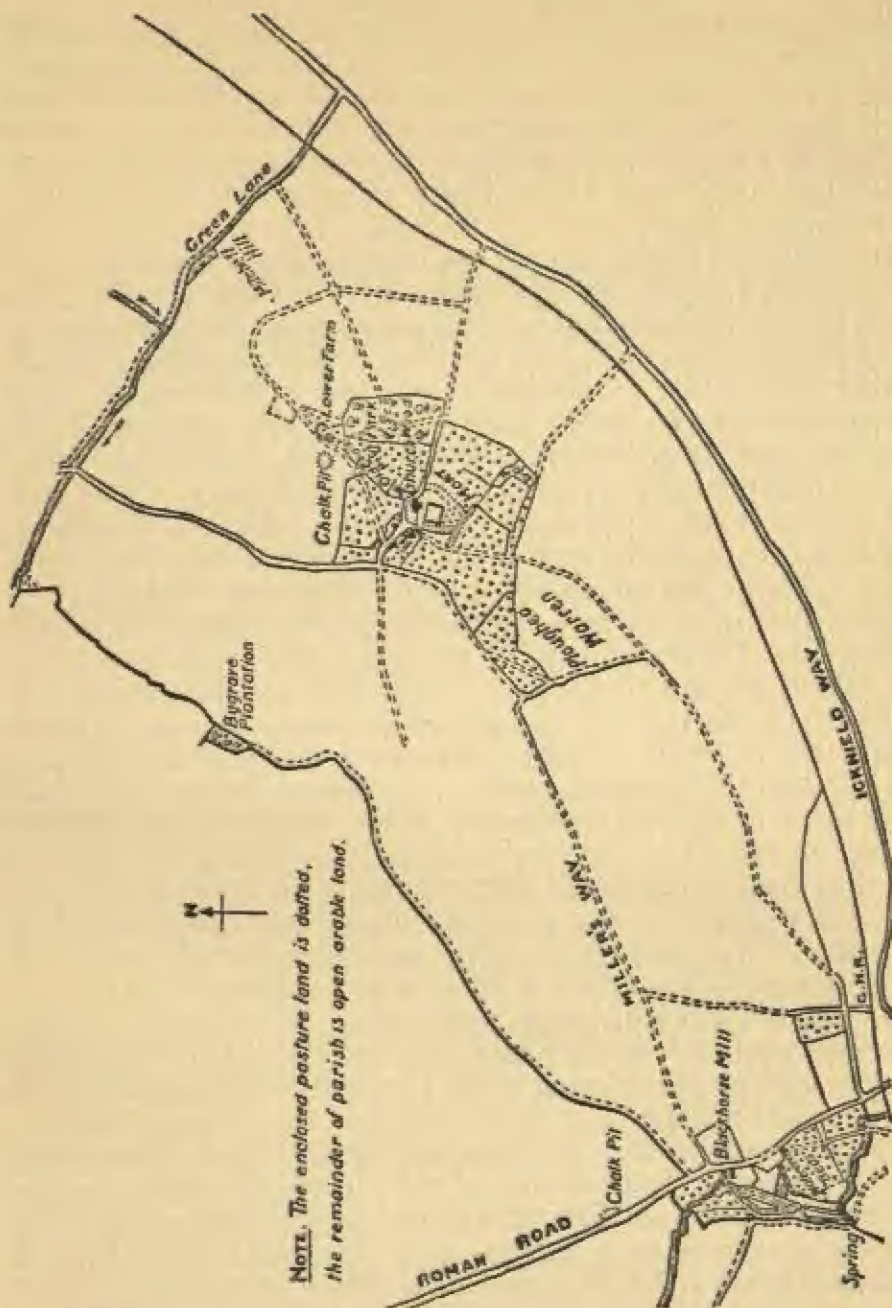
¹ Domesday Book and Beyond, 15.

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the scattered or dispersed settlements occur chiefly in Wales and in the west and north of England. They are found throughout Cornwall, in Devon, Somerset and the open parts of the Welsh border counties, in Yorkshire and Derbyshire, and probably they are the origin of the great parishes with their numerous townships of the other northern counties. They were adapted for a pastoral people and are generally to be found in moorland or mountainous country which has become divided into large parishes. They consist of hamlets and single houses or small groups of houses scattered somewhat promiscuously throughout a district. The principal hamlet from which the settlement or parish takes its name—which was probably the meeting place of the district and where the church was eventually placed—was generally on high land or a main road and frequently at cross roads, bridges, or such like places of nodality.

A development of scattered hamlets must be mentioned which has quite a different origin to those just referred to. The subinfeudations which came as a consequence of the Barons' Wars of the twelfth and thirteenth centuries, led to the cutting up of some of the great manors into smaller holdings. A notable instance of this development was at the large manor of Wheathampstead in Hertfordshire, belonging to the abbot and convent of Westminster. Here the extensive waste lands were divided into holdings of a carucate of 120 acres and were purchased mainly by London merchants, probably the war profiteers of the day, who were apparently under an implied obligation to build a house and clear their lands. In this way several scattered hamlets grew up in what was originally a nucleated settlement. There are similar indications in many large manors elsewhere.

The small groups of settlers who dwelt in nucleated villages had many advantages, both defensive and economic, over the inhabitants of the dispersed settlements. Nucleated settlements that were established for trade were necessarily concentrated along a road or river on each side of which their territories generally spread. The purely agricultural settlers on the other hand, placed their villages in the midst of their territories some way from the lines of communication beyond which their lands did not usually extend. The object of the latter settlers was to have easy access to all parts of their fields and security from evil disposed persons travelling by the highways. Thus for the earliest settlements of this type, the roads and rivers forming the lines of settlement were adapted as boundaries. Although through the lapse of nearly 1500 years considerable alterations have been made



NOTE. The enclosed pasture land is dotted, the remainder of parish is open arable land.

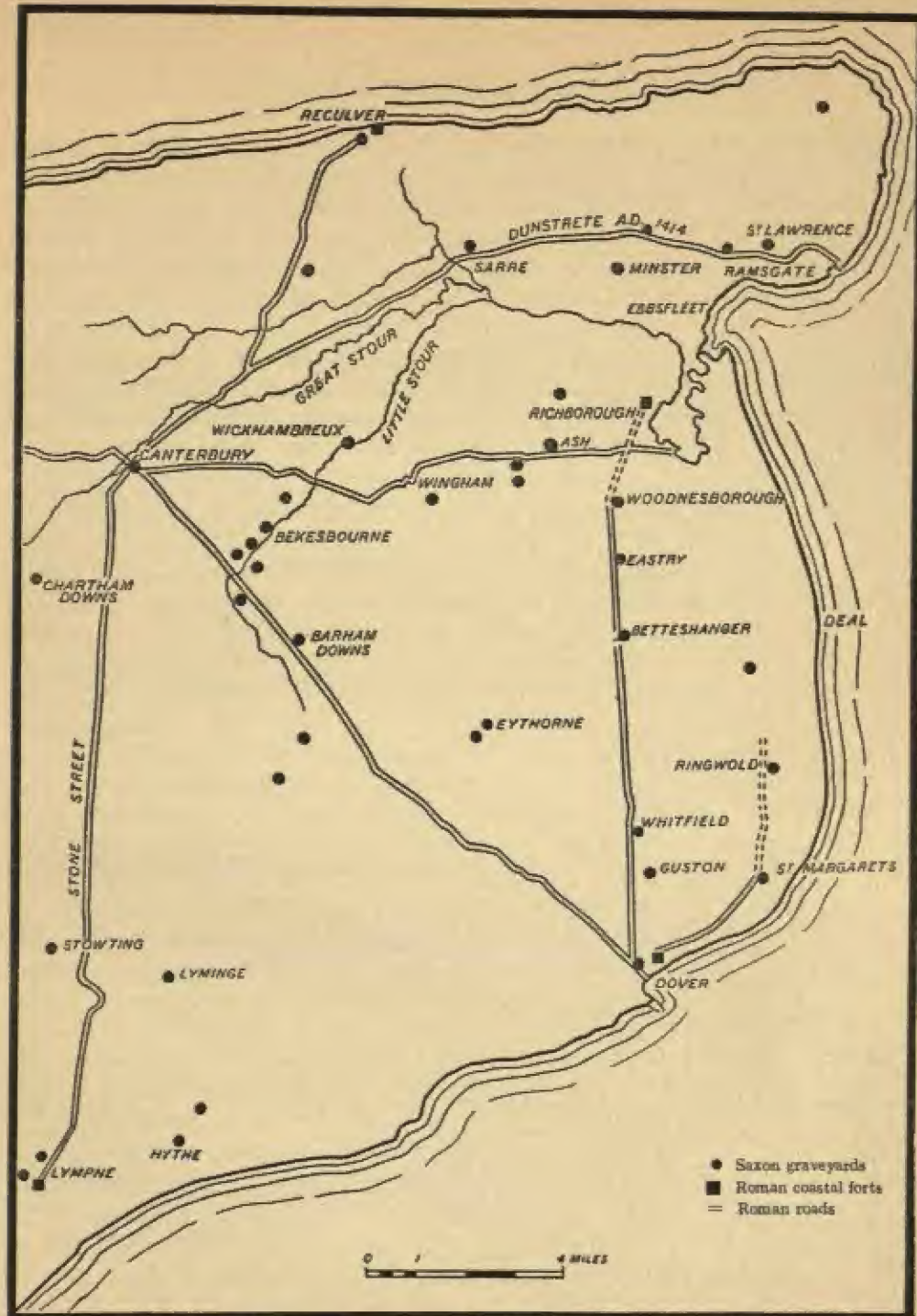
PLAN OF THE PARISH OF BYGRAVE, HERTS., SHOWING NUCLEATED VILLAGE OFF THE ROAD
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in the settlement areas, now represented by parishes, yet the general lines of settlement are in many cases fairly well indicated. The parish boundaries have naturally become irregular owing to the formation of new settlements within the ancient areas and the transfer of land and tithes from one settlement to another. These changes have occurred more frequently where the ancient limits are not marked by fixed lines, such as roads or rivers.

The nucleated settlements on the roads having developed largely into trading towns and halting places for travellers have in many instances lost their village aspect. The essential features of settlements off the lines of communication, on the other hand, have generally survived. The village of the latter type was usually set on rising ground. The lord's residence, later the manor house, is found in the highest part and, in accordance with the practice of the tenth and eleventh centuries and later, with the church adjoining it. We cannot do better than examine the fairly well known example of Bygrave in Hertfordshire, lying to the east of the Great North road and aligned on to the Icknield way which forms its south eastern boundary. On the highest part of the village are the site of the manor house, now destroyed, and the church, with a moat surrounding them; to the west of which lies the village street. The inclosed pasture lands lie immediately around the village, and beyond on all sides to the parish boundaries are the open arable fields covering nearly 1000 acres, without hedge or fence. Uninclosed roads or driftways connect the village with the main roads. The boundary of the parish extends over the line of the Great North road in order to get water power from the river Ivel to drive the manorial mill. There is a marl pit to give marl for the land, a copse to provide fuel and timber and a coney warren to supply game. We have here a very interesting survival of a self-contained community which it is to be hoped will be preserved in its present condition as an historical monument. It is only occasionally that we find such a complete example, but the general lay-out of settlements of this type is often to be met with in the midland and eastern parts of England.

Let us take the evidence of one or two districts to illustrate the types of nucleated settlements and their distribution. It may perhaps be assumed that the earliest settlements in this country after the withdrawal of the Roman legions, were those made by the Jutish invaders in Thanet and East Kent in the middle of the fifth century. It is pretty clear that a base was formed by the invaders at the



MAP OF EAST KENT SHOWING EARLY ROAD-SIDE AND RIVER-SIDE SETTLEMENTS

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mouth of the Stour. To gain control over East Kent, it would be absolutely necessary to hold Canterbury, the country being covered by Roman roads which with the villages and waterways all converged on that city. At St. Lawrence, near Ramsgate and at Ozengell a mile to the north-west, there are early Saxon or Jutish cemeteries which no doubt served the settlements that formed the base for the early invader. The river Stour is so serpentine in its course from its mouth to Canterbury and passes through so wide a district of marsh land, that it is obvious these early immigrants abandoned it, as a means of transport, for the more direct course on higher land which was afforded them by the Roman roads. Along the road from Ramsgate to Canterbury, which if not a Roman road, was at all events in use in the fifth century, there was an early Saxon cemetery indicating a settlement at Ozengell and another at Telegraph Hill north of Minster and a large and wealthy cemetery at the road-side settlement at Sarre. Along the Roman road from Sandwich or Stonar to Canterbury are the road-side villages of Ash, Gilton, Wingham and Littlebourne, with early Saxon cemeteries. Again the village of Woodnesborough, where Saxon objects have been found, and those of Eastry, Betteshanger and Whitfield, where early Saxon cemeteries exist, are all road-side settlements. Possibly an old coast road, called the Roman road, from the eastern heights at Dover to St. Margaret's and northward, was a Roman way. At Bay Hill, St. Margaret's, on this road, is an early Saxon cemetery. From St. Margaret's there is a straight footpath to Ringwould where again there are burials of a similar date. It is curious however, that, except at Stanford two miles north of Lympne, there are no road-side villages along the fourteen miles covered by Stone Street from Lympne to Canterbury. The settlements along this road seem to belong to the nucleated type off the lines of communication, the Roman road forming the boundary between the settlements on each side for a considerable part of its length. The Roman road from Dover to Canterbury has road-side villages for about four miles outside Dover but beyond, except for Bridge which belongs to the Nail Bourne series of villages, there are no road-side villages. These two roads seem to have played much less part in the settlement of the country than the roads to the north and east, a condition which can be accounted for if the invaders had their base at Sandwich Bay.

The remaining line of influence in the settlement of the country here was that of the Little Stour and its tributary the Nail Bourne. There are nucleated villages on the river-bank at the crossing places

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over the river, each with an early Saxon cemetery, namely, at Littlebourne where the ancient road from Sandwich to Canterbury crosses the Little Stour ; at Beakesbourne where the Pilgrims Way crosses the Nail Bourne ; at Patribourne where another Pilgrims Way crosses the river ; at Bifrons Park ; at Bridge where Watling Street crosses the river ; at Bishopsbourne ; at Kingston ; at Barham and at the important Saxon and Roman settlement at Lyminge.

It is clear that the early immigrants made their settlements chiefly along the roads and rivers east of Canterbury, but there are lines of settlement showing their progress westward. In the Stour valley there are nucleated river-side villages, where early Saxon cemeteries have been found at Chartham, Godmersham, Crundale, Broughton and Wye. Along Watling Street westward from Canterbury, there are road-side settlements at Faversham, Sittingbourne, Milton, Brompton, Chatham, Strood and Rochester. All of these towns are probably of Romano-British origin and were occupied by the Saxon invaders who, from the cemeteries they have left, appear to have been populous and wealthy. The river Darent formed another line of settlement. Here at Horton Kirby, Eynsford and Lullington were also early Saxon cemeteries.

It will thus be seen that the prevailing early settlements in northern and eastern Kent are of the nucleated road-side or river-side type. In many instances the invader had occupied an earlier Romano-British town, but as there are several of his settlements here on the road side where there is no evidence of earlier occupation, it may be presumed he settled beside the road or river by his own free choice. There is little doubt that these Jutish immigrants were traders who would naturally settle on the lines of traffic and if, as has been suggested, they came from the Rhineland, they would be strongly influenced by Roman methods.² We have evidence among the furniture of distant graves in Mercia of their traffic inland, hence the importance to them of securing Watling Street and the crossing of the Thames at London, and also of having control over London, the road-centre of the whole country.

South-westward of a line drawn from Lewisham to Maidstone and from Maidstone to the Romney Marshes, no early Saxon cemeteries have been found and in this forest land no Saxon settlements were made probably till a later date. As these cemeteries with their graves containing personal and other objects belong to the pagan Saxon

² E. Thurlow Leeds, *Arch. of the Anglo-Saxon Settlements*, p. 121, *et seq.*

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period, the settlements to which they were attached must be of a date earlier than the first half of the seventh century. The settlement of the rest of Kent was gradual, transport was slow and hazardous and the growth of population cannot have been very great. It is quite likely therefore that the forest land to the south and west was not settled until after the landing of St. Augustine in 597, and the subsequent conversion of the land to Christianity when these pagan cemeteries would shortly fall into disuse. The types of settlement in this forest district were principally the nucleated village on a subsidiary road and the ring-fence village of the late forest type.

In Sussex the Roman roads seem to have formed little or no part of the scheme of settlement. The early lines of migration were along the rivers in the south of the county where a few early Saxon cemeteries have been discovered. It was to these parts probably that the first settlers came. In the forest land of the north are ring-fence and road-side settlements of a similar late type to those found in the forest land of Kent.

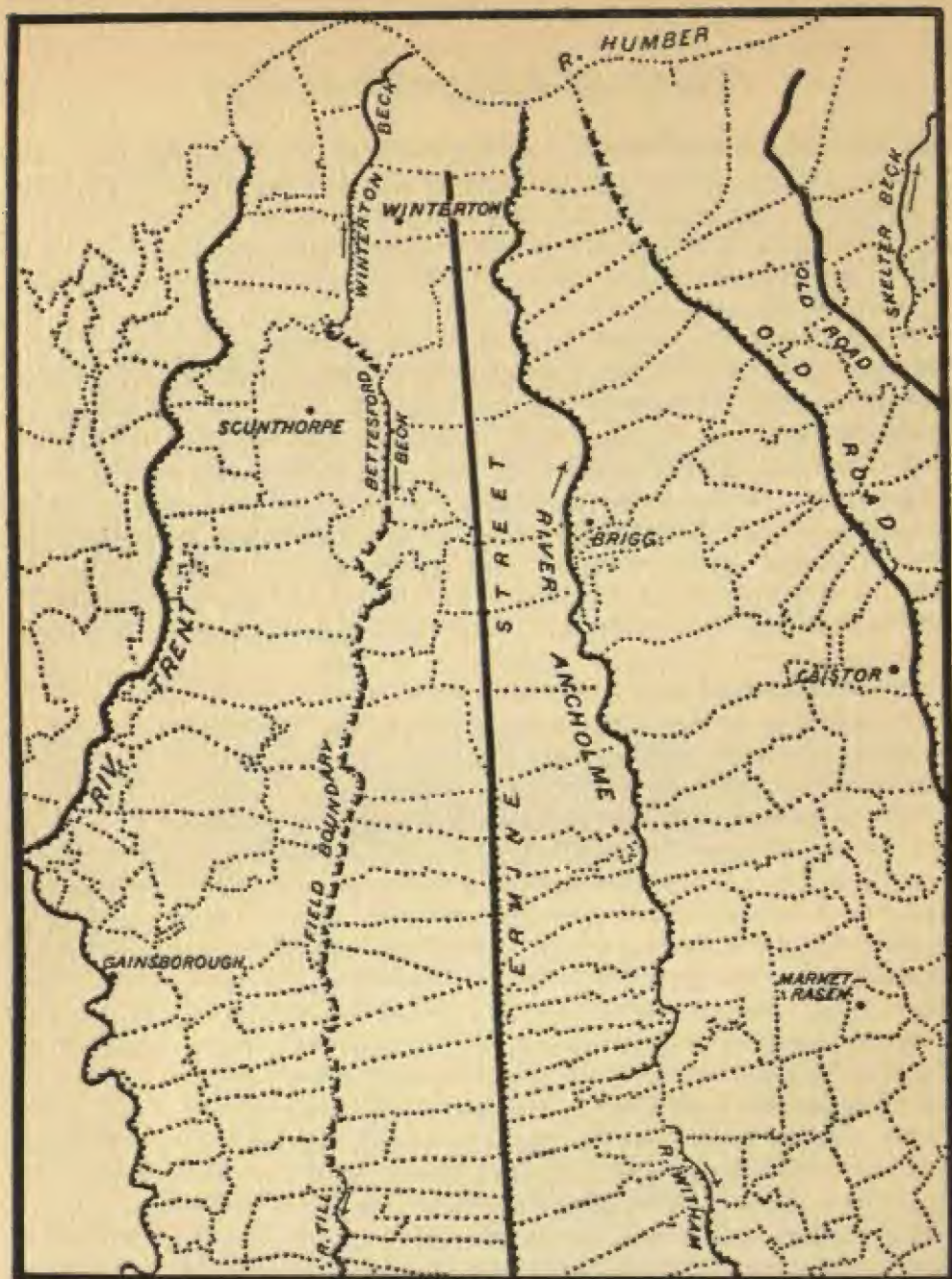
Very different were the nucleated settlements off the lines of communication such as are to be found in the middle and east of England. The lines of these settlements are particularly well marked in Lincolnshire, partly perhaps because they run there more or less parallel to one another. It is obvious, as we shall see, that the first bands of settlers in Lincolnshire used the rivers as their lines of migration and then adopted the Roman roads or new tracks formed for the purpose. They entered the county by the Humber on the north and the Wash on the south. From the Humber the principal rivers influencing the lines of settlement were the Trent and the Old Ancholme, and from the Wash, the Welland and the Witham with its tributary the Glen.

With regard to the river Trent we find a series of settlements going off east and west, with nucleated villages standing on the east side on the high land of the hills there rising from the river, and on the west side mostly on low land. They are about a mile from the river bank on each side, except at a crossing place over the river, where the village is on the bank itself and has occasionally a bridgehead projecting across the river. This line of settlements can be traced up the Trent through Nottinghamshire and Leicestershire, and up its tributary the Soar through the last county. The parishes which may perhaps be taken as approximately representing the territories of the original settlements, are rather irregular in the Isle of Axholme on the west side of the river. Southward of the island they become more regular. On

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the east side of the river it would seem probable, from the lay-out of the boundaries, that originally the land between the Trent and the Old Ancholme was divided between only two lines of settlements—Alkborough with Whitton and West Halton (perhaps forming one or two settlements), Burton upon Stather, Flexborough, Crosby with Gunhouse, Scunthorpe, Frodingham, Brumby, Ashby with Burringham, Bottesford with East Butterwick and Holme, Messingham, Scotter and Scotton with East Ferry, on one side, aligned on to the Trent, and Winteringham, Winterton, Roxby cum Risby, Appleby, Broughton with Ravenhorpe, Scawley with Twigmoor and Manton, Hibaldstow with Cleatham and Kirton in Lindsey with Redbourne, on the other, aligned on to the Old Ancholme. It will be noticed that these settlements, which are aligned on to the Old Ancholme for some fifteen miles, ignore Ermine Street both as a boundary and as a line of communication between the villages. Only at Appleby is there a village on the Roman road, and this probably because it was the site of a Roman settlement, remains of Roman buildings having been found here.

Although settlements are aligned on to the Ancholme to its source at or near Firsby, its importance southward from Kirton in Lindsey seems to be superseded by Ermine Street, along which to Lincoln a series of settlements are laid out with curious regularity. It will be observed that near the point where Ermine Street becomes the line of settlement and where the southern boundary of Kirton in Lindsey touches the street, a road branches off north eastward from the Roman road through Redbourne and Brigg to Barton upon Humber. Perhaps the mouth of the Ancholme had become silted up or the river above Redbourne was too shallow for the ships of the immigrants, and so this road was made from a new landing place at Barton upon Humber. The villages lie from one to three miles on each side of Ermine Street and on the west side are placed on the fertile and water bearing slopes of the ridge running from Roxby to Lincoln, but on the east they are on lower ground. The western boundaries of those on the west side are mostly field boundaries with occasionally a beck or small river like the Till or a piece of a lane, while those on the east side run along the river Ancholme and a tributary of the Witham, and so are on fixed lines. It will be clear from the map that many of the settlements have in the course of centuries become divided and sub-divided, thus each of the following groups of parishes amongst others apparently once formed one settlement—East and West Firsby ; Ingham and Coates ; Battleby, Aisthorpe



SKETCH MAP OF NORTH LINCOLNSHIRE SHOWING LINES OF NUCLEATED SETTLEMENTS
OFF LINES OF COMMUNICATION

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TYPES OF ENGLISH VILLAGES

and Thorpe in the Fallows ; Hackthorn and Cold Hanworth ; and North Carlton and part of Broxholme. Each village has access to Ermine Street by a road or driftway. From Kirton in Lindsey southward a line of settlement has been interposed between the settlements on the east of the Trent and those on the west of Ermine Street.

There are indications of two other lines of settlement in the north-east of the county, starting from the Humber. The more distinct of them begins at South Ferriby and passes by an ancient track, now only a footpath, which runs south eastward along the high land and joins the road from Barton on Humber to Castor and on to Horncastle. The villages lie about two miles off the road on each side. In the north, the settlements extend on the east side from the Old Ancholme to the road but southward as the space between the lines of the river and road widens, fresh lines of settlements have been established. The villages lie at the foot of the steep descent on the west side of the Wolds.

The other line of settlement is not so clearly marked. It appears to start at the Skelter Beck which meets the road from Barrow upon Humber to Louth between Ulceby and Brocklesby. The road does not become a boundary line until southward of Irby, whence for about eighteen miles to Fotherby a series of settlements are aligned on to it. The villages lie from half a mile to two miles on each side, those on the west lying on the eastern slope of the Wolds. South of Louth, the line is not traceable.

All these settlements above described are of one type and although during many centuries they have become subdivided, and intermixed, sufficient of their original forms remains to show that they must have been set out systematically and methodically. Those aligned on to Ermine Street originally seem to have had something approximating an equal frontage of between a mile and a mile and a quarter on to the road. The settlements on the west side extended back about four miles, and those on the east were of about the same length, their boundaries being fixed by the river Ancholme. Each line of settlement, one would imagine, must have been planned by some central authority and at one time. The interposed settlements, though all of the same nucleated type are not laid out, so far as can be seen, in any orderly fashion and may have been founded by squatters. Natural boundaries have been little used for these settlements and it would seem probable that there were at first no fixed limits to them. The sites selected for

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the villages as a general rule lie on the slopes of the hills where water bearing and fertile lands are to be found.

It is interesting to notice that the place-names are much mixed. The name of one settlement may be Anglian and that adjoining it, obviously laid out at the same time, may be Danish. In the line of nucleated settlements off the lines of communication running along the west side of the Wolds from South Ferriby, we have Saxby, Bonby, Worlaby, Barnetby, Bigby, Somerby, Scarby, Grasby and Clixby, but they are precisely the same in type as their neighbouring parishes bearing Saxon or Anglian names.³ It would seem probable that when the Danes overran all this country in the ninth century they drove out the Anglian owners of these settlements, to some of which they gave new names formed from their own language but the others were permitted to retain their old names. The Danes, as traders, we know favoured roadside settlements and it may well be that they made the road called Middle Street running almost parallel to Ermine Street. This road links up the villages on the west side of Ermine Street from Kirton in Lindsey to Lincoln and was possibly constructed to attract the traffic away from the Roman road and convert the villages into road-side towns.

Lincoln as a walled city would naturally break up the lines of agricultural settlements. To the south of the city, however, a fresh line of settlements follows the Roman road which diverges from Ermine Street and goes to Sleaford. Probably there has been a disturbance of the boundaries of Branston, Mere and Potter Hanworth, which may at one time have aligned on to this road. From these settlements southward to Temple Bruer, the Roman road to Sleaford formed a settlement line with one series of settlements extending westward to the river Brant and another eastward to the Witham. These settlements are peculiarly long and narrow being about a quarter to half a mile in width, and in length on the west side about two miles and on the east about four miles. The villages on the western side lie on the steep western slope of the sandy ridge running south from Lincoln towards Grantham and those on the east, on the lower and more gradual slope of the same ridge on that side.

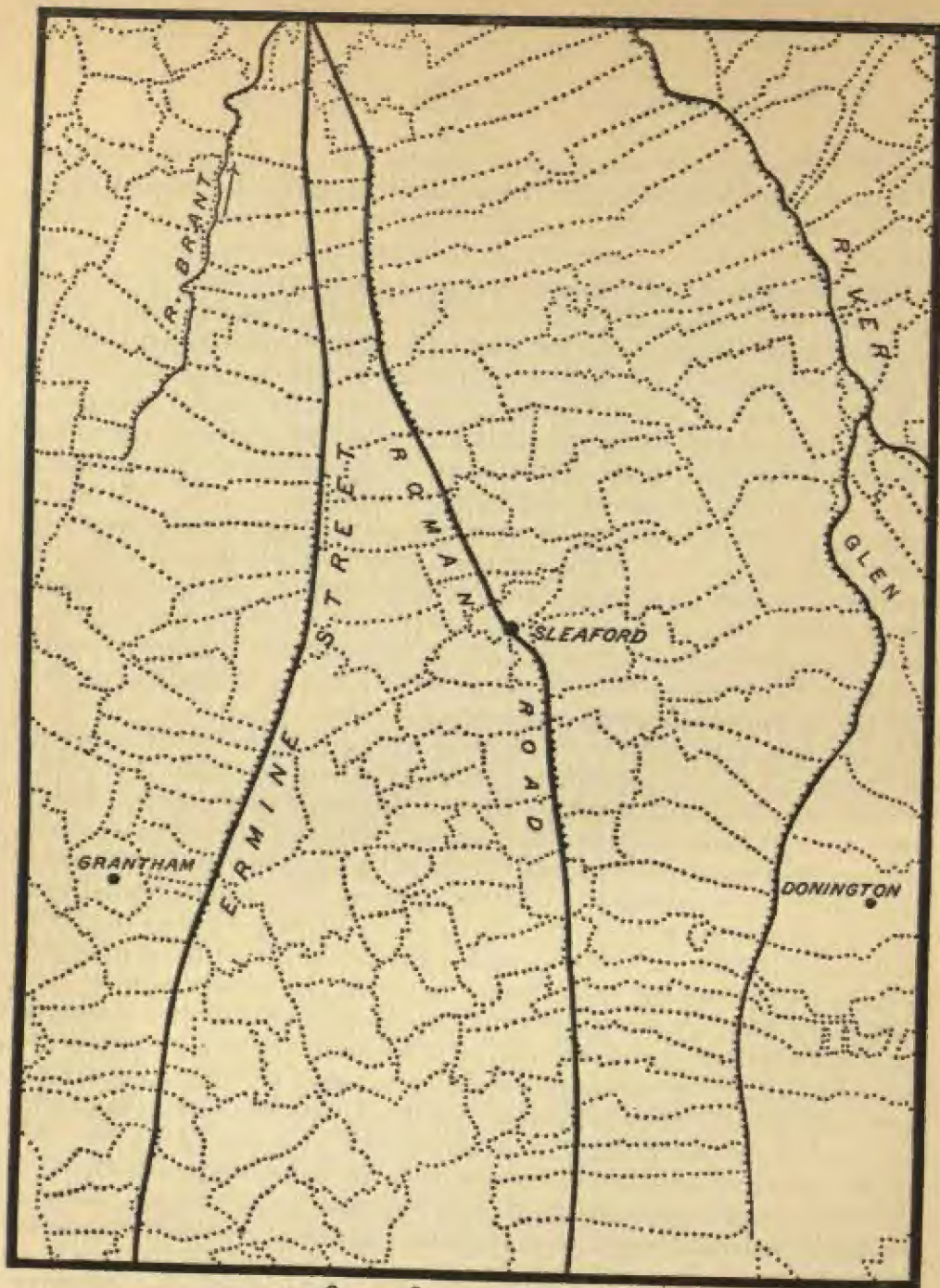
³ This frequency of Danish place-names does not extend into the south-eastern part of the Danelaw (*Place Names of Beds. and Hunts.*, p. xix), for the reason probably that north of the Nene the land was held by conquest, whereas southward the lands were ceded by treaty with Ceowulf in 877. The most southerly point of the fighting at this time was at Peterborough (Medmenham) where the monastery was destroyed (*Anglo-Saxon Chronicle*, sub anno 870).

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At Temple Bruer the road to Sleaford ceases to be the line of settlement, probably because it passes too far east from the fertile slopes of the ridge, here running north and south. The line is, however, immediately taken up again by Ermine Street, which carries it for fourteen miles to Little Ponton where the ridge is interrupted by the valley of the Witham. The settlement areas along this section of Ermine Street become less regular, but the villages are still found on the slopes of the ridge from about a mile to two miles on each side of the road. They lie on the higher slopes on the west side and the lower slopes on the east. Each village is connected with the Roman road by a subsidiary road and on the west side the villages themselves are linked up by a road which like Middle Street has become a rival to Ermine Street. The back lands on the west side are occupied by two series of settlements, aligned on to the river Witham southward to the county boundary, and westward again another line of settlement is interposed between them and those aligned on to the river Trent in Nottinghamshire. On the east side of this part of Ermine Street the settlements on the fertile lands south of Sleaford between the two Roman roads, do not seem to be set out in any regularity.

The Fen districts are not likely to have attracted the early Saxon settlers; the Fen monasteries were not founded until the tenth century when they are described as lying in desolate uninhabited wastes. There are, however, long distinct lines of settlements on each side of the straightened course of the river Glen. Those on the west side may possibly have been made in relation to the Roman road from Sleaford to Bourne and Castor, which we know was in use at the time of the early Saxon burials found at Sleaford. Although the settlement boundaries here are not now aligned on to this road the villages lie half a mile to a mile off it at the bottom of the slope of the hills running down from the Wolds. The Witham in its lower reaches flows through the fenland and was apparently used merely as a highway. North of Dogdike there is a distinct line of settlements on the west side of the river and a less pronounced one on the east. North of Martin the settlements seem to belong to the series made in relation to the Roman road from Lincoln to Sleaford already referred to. The great fenland parishes to the south of the Wash and the river Welland about Holbeach are probably of late formation. The settlements northward in the East Fen, except those aligned on to the sea coast, appear to have little uniformity in their lay-out.

Few districts in England are laid out with the same regularity as



SKETCH MAP OF SOUTH LINCOLNSHIRE SHOWING LINES OF NUCLEATED SETTLEMENTS
OFF LINES OF COMMUNICATION

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are the main lines of settlement in Lincolnshire. The only recognized means of transport at the time of the Saxon invasion were the rivers and the Roman and a few earlier roads. There can be little doubt that the first settlers of this date would pass along these lines of communication and make their settlements on each side of them. Where, therefore, we have a river or road with a parish boundary running along the whole or a great part of its course and a series of settlements aligned in an orderly manner on each side, we may perhaps fairly infer that such river or road was the route by which these immigrants travelled and along which they made their earlier settlements. The settlements on the back lands with villages surrounded by their territories would be gradually formed. At first possibly they were without definite boundaries which would be left until pressure from other settlements made them necessary. For this reason they have not the regularity of lay-out which those aligned on to the roads and rivers have. Access to these back settlements was afforded by tracks or subsidiary roads from the main lines of communication. These tracks would avoid any obstruction temporary or permanent, hence the erratic course which many of our country roads take. As, however, the Roman roads, with the exception of those in East Kent, were laid out for internal communication and not for overseas traffic, they were only used as lines of settlement by the Saxon settlers when they tapped some river or creek up which the immigrants sailed, or connected one line of settlement with another. Thus we find a part of Ermine Street was brought into use as a line of settlement where it came into touch with the Humber ; the Peddlars Way through Norfolk when it reached the Wash ; the portion of Stane Street, the Roman road from Braughing in Herts to Colchester, westward of Stisted in Essex where it crosses the Blackwater ; the part of the Icknield Way which forms the boundary between Hertfordshire and Cambridgeshire and further passes through the former county, where it joins Ermine Street and Watling Street ; numerous other instances could be quoted. Another reason for the sectional use of the Roman roads in this way is that the Roman towns, being avoided by the Saxons, were no longer distributing stations.

The Saxon immigrants with their wives and children and a certain amount of baggage, would wish to disembark as near to the place where they proposed to take up their abode as their ships could be navigated ; consequently they would use the river transport as far as possible, land transport being no doubt precarious in a country that was either hostile or sparsely inhabited. In this way throughout eastern and

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midland England we find the rivers formed the main lines of settlement. This idea seems to be corroborated by the evidence of archaeology which shows that the early Saxon cemeteries, which indicate settlements, lie along the rivers. We have seen how the Trent and its tributaries seem to have been used in this way; the Nene and the Ouse, after they have passed the Fenland, similarly became lines of settlement and so with most of the rivers which flow into the sea on the coasts of Norfolk, Suffolk, and Essex or into the Thames. London, the place of nodality upon which the Roman roads converged, bore little part in the scheme of the Saxon settlement of the country and so the Roman road system around it became neglected.

It is difficult to judge how this theory can be applied to western England. In Cornwall and other districts of dispersed settlements the rivers are continuously used as boundaries, but in other parts settlement lines may perhaps be traced. After the West Saxon victory at 'Deorham' in 577, the districts later known as the counties of Gloucester and Worcester were available for colonization. There could scarcely have been a surplus population in Wessex or elsewhere in England for settling these lands, therefore it would seem probable that colonists were brought from the continent. Such immigrants would sail round the coast to the Bristol Channel and thence up the rivers Severn and Avon. These rivers form continuous boundaries for settlements on both sides, which with the early Saxon cemeteries bordering the Avon and its tributaries seem to give evidence of the use of these rivers as lines of settlement.⁴

As a development of the nucleated settlement off the lines of communication, we have the village which has migrated to the road-side in order to catch the trade that the traffic brought there. These new settlements, so far as we can trace, first arose under the trading influences of the Danes in the tenth century, many of them growing into market towns of the inverted v-shaped type. Frequently the original settlement became forsaken, merely the church, manor house and a cottage or two being left; a condition that is so often to be found in Essex and Hertfordshire. The two villages are at times distinguished by the addition of Church Town and Street Town, Great and Little, North and South, East and West, Upper and Nether and the like, although such additions do not necessarily indicate developments of this kind. Sometimes the road-side settlement took a different name, as Wadesmill, the road-side settlement of Thundridge in Hertfordshire, and Fenny

⁴ Cf. *The Place Names of Worcestershire* (English Place Name Soc. iv), p. xiv.



PLAN OF STEVENAGE, HERTS., SHOWING EARLY SETTLEMENT NEAR CHURCH
AND LATER MARKET TOWN

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Stratford, that of Bletchley in Buckinghamshire. Occasionally the two settlements became separate parishes as in the case of North Mimms in Hertfordshire, a nucleated village off the road to St. Albans now consisting of the church and North Mimms House, which had its road-side settlement at South Mimms forming another parish in Middlesex. Many instances of these migrated villages may be found along Ermine Street; at Stevenage on the Great North Road in Hertfordshire we have a notable example of this development. The Church of St. Nicholas, the Bury or ancient manor house, and a few cottages will be seen at the north-east corner of the map here shown. These form the remains of the original nucleated settlement off the road. About three quarters of a mile to the south west a road-side village was at some time founded on the Great North Road where a market was established at the fork of the road here in 1281. By the fourteenth century the road-side town had quite overshadowed the village. A late attempt to establish a road-side market town took place at Buckland in Hertfordshire, a little south of the market town of Royston. Here the lord of the manor of Pope's Hall in Buckland tried in 1252 to found a market town on Ermine Street at a place still called Chipping. Six years later the lord of the manor of Buckland obtained a grant for a rival market at Buckland half a mile to the north. Neither attempt was successful but in 1360 Elizabeth de Burgh, who had become possessed of both manors, received licence to move the market at Chipping to Buntingford, a little further south where the road from the Pelhams to Baldock and the river Ribb, both cross Ermine Street. Here a market town with the usual inverted v-shaped market place was successfully established.

The double towns divided by rivers, such as those at Bedford, Hertford, Buckingham, Stamford and elsewhere, which originally had separate organizations and market places that were generally merged at an early date, are only a development of the bridge-head. It was necessary at the more important crossing places of rivers to establish these bridge-heads for purposes of protection, general control and levying of dues.

The ring-fence settlement occurs in forest land and will be found in Middlesex, Surrey, Kent, Sussex and Hampshire and probably other districts that are or have been forest. It consisted of an open space, now sometimes built over, encircled by a road which usually continues at the opposite ends of the enclosure. Associated with this type of settlement is the village green such as is so common in Middlesex. This form of settlement is late, probably the forest lands were not settled until the

TYPES OF ENGLISH VILLAGES

open country had been colonized. Many seem to have been of post-Conquest foundation. They represent no doubt the original clearing in the forest in which the cattle could graze with safety. There would not have been room for any systematic agriculture and the settlers were probably woodmen.



PLAN OF GREENFORD, MIDD., SHOWING A RING-FENCE SETTLEMENT
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 and of the Society of Antiquaries of London

The small market town usually with a market place made by the widening of the roadway in the shape of an inverted v, is to be found all over England. It is naturally the most convenient form for a town of the kind, which must necessarily be on a high road. Facing the market place are the houses which, if the town is a borough, were generally the burgages with their gardens extending back in long



PLAN OF ST. ALBANS, HERTS., REDUCED FROM PLAN OF BENJAMIN HARE, 1634,
SHOWING ELONGATED V-SHAPED MARKET-PLACE

TYPES OF ENGLISH VILLAGES

narrow strips. The ends of these gardens usually formed the borough boundary. The market places in many instances have now been built over and are covered by shops and intricate courts and alleys. At first places for booths and stalls were granted which as early as the fourteenth century became permanent structures and developed into shops. The church stands at the end or on one side of the market place. A good example of such a development is St. Albans which we know was laid out by Abbot Wulsin about 950. The market place is formed by the spreading out of the road from the north towards the abbey at its south end, the church of St. Peter standing at the apex of the triangle. We have record that the Abbot of St. Albans encouraged settlers by making grants of material with which to build their houses. He divided the frontage on the market place into plots with a depth going back to the borough boundary, called Tonman's Dyke, which may have been defensible. Every change of direction of the borough boundary was marked by a cross. The southern part of the market place has become built over in the manner already indicated. At each of the three entrances to the town the abbot built a church assigning to it a very large parish from the surrounding district. The roads leading to the town met in the market place so that all traffic was compelled to pass through it, a point which was always looked to in medieval market towns even to the diverting of roads in order to accomplish it. Another example here shown is that of Hitchin in Hertfordshire lying at the intersection of the road to Bedford and the Icknield way. Like St. Albans it probably became a market town in the tenth century.

The choice of sites and development of plans of cities and larger towns are subjects beyond the scope of my paper and have been dealt with on many occasions of late years. As yet we scarcely know enough of the subject of the development of village sites to come to any definite conclusions as to racial, regional and chronological influences upon them. The dispersed types are generally assigned to Celtic origin and the nucleated to Teutonic, but in the lead-mining district of West Derby, on the steep eastern bank of the river Dove, among a series of early Saxon cemeteries, we find ourselves in the midst of dispersed farms and hamlets. The land, however, is quite unsuitable for agriculture, and the Saxons who settled there no doubt saw the futility of using their methods of cultivation requiring concentrated villages. In some places as in Cheshire and Shropshire, where the Saxon penetration was of a later date and a milder form we seem to get a mixture of dispersed and nucleated settlements, the latter being aligned

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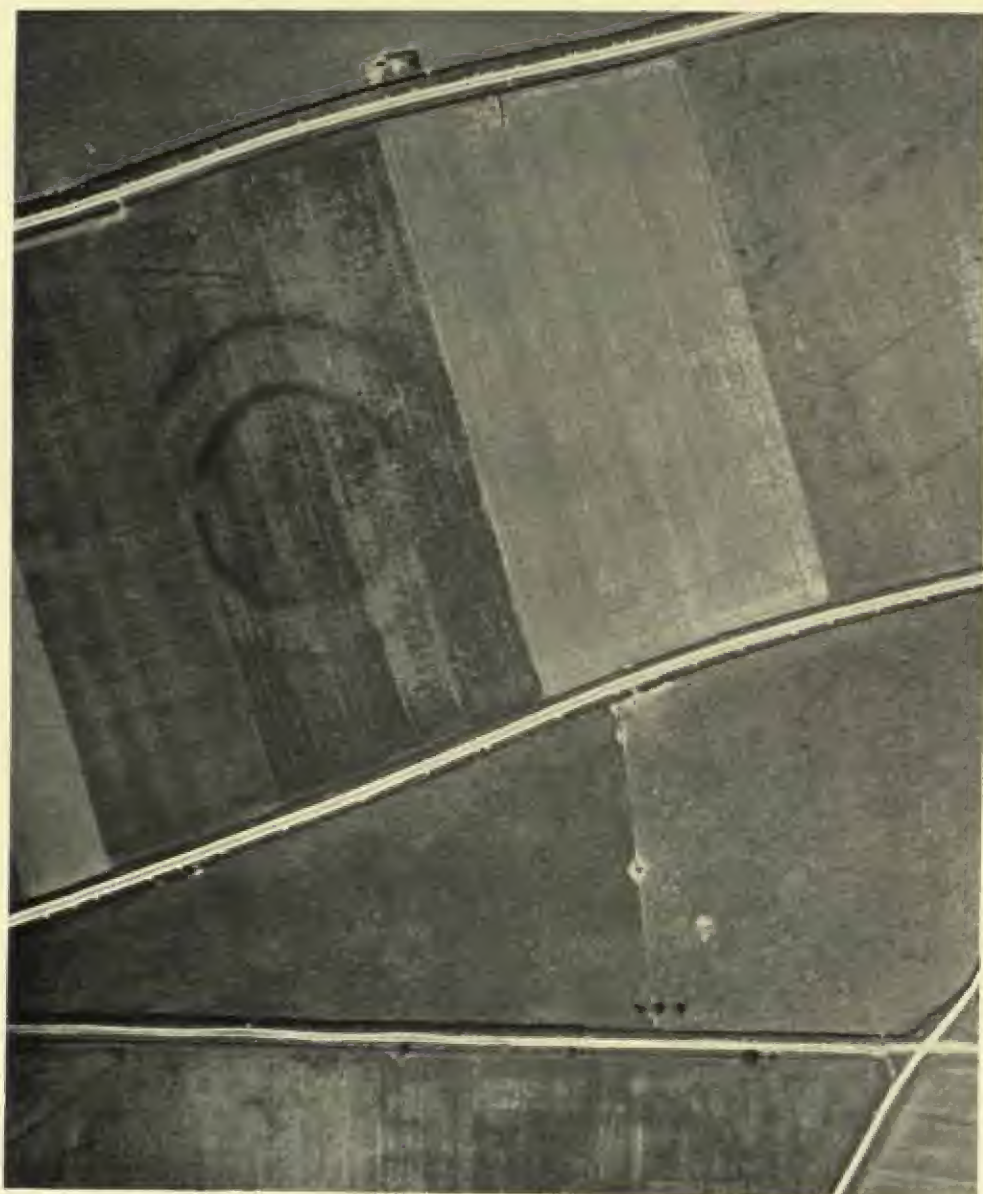
on to rivers and the former perhaps left on the back lands. The nucleated settlements may approximately follow in distribution the areas of the two and three field systems as shown by Dr. H. L. Gray in the *English Field Systems* but there are variants in both the forms of settlements and systems of cultivation which require correlation.



PLAN OF HITCHIN, HERTS., SHOWING V-SHAPED MARKET-PLACE, BUILT OVER
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and of the Society of Antiquaries of London*

Probably soil, climate and position are also factors not to be ignored in the question of the distribution of types of settlements. We shall not be able to draw reliable conclusions until we have learnt to decipher Professor Maitland's palimpsest district by district.

PLATE I



0 100 500 1000 FEET

THE DORCHESTER CIRCLES, OXFORDSHIRE
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facing p. 469

Notes and News

AIR-PHOTOGRAPHS NEAR DORCHESTER, OXON. (PLATES I-II)

By the merest accident a most important discovery was made last June by two officers of the Royal Air Force stationed at Farnborough (Flight-Lieuts. W. E. Purdin and B. T. Hood). The two large circles shown on plate 1 were entirely unknown until the negative arrived, with several others, at the Ordnance Survey Office last September. The exposures were made in the immediate neighbourhood of Dorchester at 10.30 a.m. on 16 June 1927. Some of the crop-marks revealed may have been intensified by the long dry spell which lasted from 12 April to 15 May.

The circles are situated in a large arable field lying to the north of Dorchester, between the Oxford and Abingdon roads. The field itself is absolutely flat; the levels taken along the roads which bound it nowhere differ by more than four feet (161 to 165 feet above sea level, and about 10 feet above the Thames). There is not the slightest sign of the circles visible to an observer on the ground; they are visible only from above, under certain favourable conditions of weather and crops. In order to test the circles and if possible ascertain their date, I decided to dig a trench through each of them.¹ This was on the assumption (which proved correct), that the circles represented silted-up ditches, revealed on the negative by the crops. The digging occupied two days, and the filling-in one (10-12 October 1927); and was carried out by two men under the direction of Mr R. G. Collingwood and myself.

Before we could begin digging at all, it was necessary to find the circles! This could only be done by measurements on the photograph. It will be observed that an arc of the outer circle is only faintly visible, owing to a difference in the crops. The line dividing these crops²

¹ Thanks are due to Mr R. Ryman, of Didcot, the owner, and Mr M. Fuller, of Dorchester, the tenant, for permission to dig the trenches.

² The northern field containing the inner, and most of the outer, circle had a crop of horse-beans; the southern one barley. Note the different reactions of these two crops to the ditches. Had the whole field been sown with barley, they would hardly have been visible at all.

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cuts the outer circle twice, and touches the inner circle tangentially. We decided to cut a trench first through the inner circle, starting from the crop division. If our measurements were right, the southern end of our trench should start on the southern lip of the ancient buried ditch; and this proved to be the case. (Our trench was 20 feet long, and 4 feet wide).

We found that there was a natural deposit of reddish-yellow loam or brick-earth, about 2 feet 6 inches in thickness, resting upon loose sand. This sand was plainly seen at the southern end of the trench. At the other end the sand was not reached until we had gone down through 6 feet 4 inches of brick-earth, the silt filling of the old circle-ditch. (Actually, before we could clear down to that depth the water-table was reached; but with a fork one could feel the stoney layer on the top of the sand). The deepest point of the circle-ditch was at the north end of the trench; it must originally have been not less than 36 feet across from lip to lip. There were no finds but a large animal-bone, about 5 feet deep.

The second trench was laid out to cut the outer circle at the point where that is cut by the crop-division. The preliminary measurements demanded more *finesse* this time, since we were planning to hit an intersection, instead of a point of tangential contact. We aimed at getting the middle of the circle-ditch to fall in the middle of our trench, and we actually succeeded in getting within 4 feet of doing so! Again we found a layer of $2\frac{1}{2}$ feet of brick-earth covering the sand. The inner lip of the circle-ditch was apparent at the northern end of our trench; and the sides could be seen sloping downwards from it at a gentle angle. At a depth of between 5 or 6 feet in the silt filling was a layer of black stuff, about a foot in thickness. This represented the middle of the circle-ditch. It yielded a shoulder-blade (5 feet 2 inches) and some small fragments of other animal-bones. In neither trench was the smallest fragment of pottery found; so that we know no more about the date of the circles than we did before.

The dig, however, was by no means unproductive. It proved that under certain conditions, an old silted-up ditch may be revealed to the aeroplane-camera by horse-beans, even when such a ditch is blanketed by $2\frac{1}{2}$ feet of stiff loam. The mechanism by which this is achieved remains to be determined; perhaps capillary attraction causes moisture to rise through the more compact, though permeable, loam which fills the old circle-ditch. Since the bottom of this ditch penetrates, after a wet season, at least a foot beneath the water-table, it

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cannot, even in the driest spell, be very far above it. The added moisture thus drawn up would be adequate to stimulate the crops immediately above the moist belt, and to cause that darker hue which appears on the vertical photograph. This effect of moisture is familiar and proven many times over ; but it was not suspected that it could act differentially through $2\frac{1}{2}$ feet of compact, homogeneous material.

A word must be added about the circles themselves. They belong presumably to the class of sacred circles ; and are to be compared with those at Thornbrough and Hutton Moor in Yorkshire.

The same plate reveals also several other interesting features, all of them new and all invisible on the ground. There are two parallel dark lines 40 feet apart, suggesting a track between fields, possibly of prehistoric or Romano-British date. Such tracks on the downs are known to have been bounded by ditches—and the dark lines here plainly stand for narrow ditches—but the downland tracks are usually much less than 40 feet wide. Parallel with these are two other dark lines, also running parallel, and laid out straighter than the forgoing. They continued beyond the two roads and can be traced altogether for more than half a mile ; the alignment is almost but not quite straight. They appear again on plate II (lower view). The western line is interrupted by a small circle, probably representing the ditch round a barrow.

The same batch of photographs, taken at the same time, brought to light several other new and interesting features. Some of these are published on plate II and drawn in plan on pages 472 and 473. The upper view shows the large arable field between Bishop's Court, Dorchester, and the Thames, small portions of both of which are included. The rectangular enclosures revealed will strike the eye at once. They bear no relation to the existing field-divisions, and indeed they cut through the present field-road near its turning-point, where some straw-ricks stood when the photograph was taken. Double ditches of unequal size and 20 feet apart are again seen. The age and purpose of these markings is entirely unknown ; and there are no signs visible on the surface.

At A (the point where the northernmost line strikes the river) a semi-circular enclosure is visible, with a gap on the land-ward (eastern) portion. The line and the enclosure intersect at an obtuse angle, and plainly belong to different ages. One would imagine the enclosure to be the older, and to be prehistoric. A number of small dark spots may indicate pits.

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Bishop's Court is described on the Ordnance Map as on the site of a bishop's 'palace'. Dorchester was a bishop's see between 874 and 1050 A.D. ; and perhaps our rectangular markings are connected with this residence. They may equally well be either earlier or later.

The lower view represents part of the Minchin recreation ground, Dorchester (with a white square in the middle), and some allotments, both adjoining the Oxford road on the east.

The left hand portion shows the end of the parallel lines referred to above. Between them there is visible on the print a circle (B), of

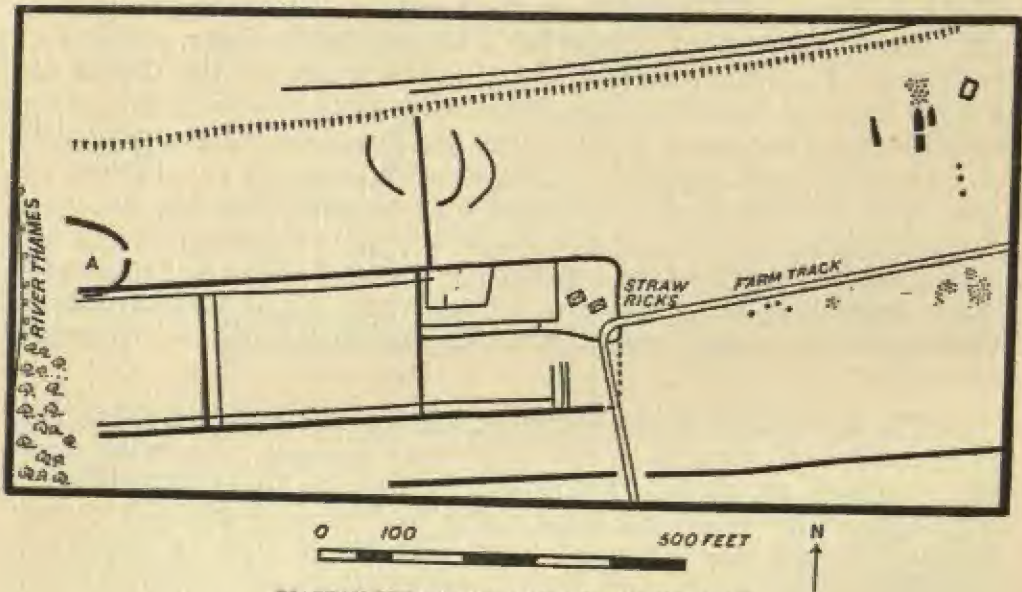


DIAGRAM EXPLAINING UPPER PART OF PLATE II

twelve minute black dots. This circle is small, but unmistakable ; presumably the dots are holes and were filled by stone or timber uprights. The diameter is about 120 feet.

Further to the right is a dark band (CD), forming an arc of a circle. This is the only instance, in all these photographs, where there is something to see on the ground. The portion within the arc forms a large low mound, and is presumably the remains of a barrow which is being flattened by cultivation ;—the arc representing the ditch—or such portion of it as was covered by a 'sympathetic' crop when the photograph was taken.

PLATE II



BISHOP'S COURT FARM (ABOVE) AND MINCHIN RECREATION GROUND (BELOW)
NEAR DORCHESTER, OXFORDSHIRE

Reproduced by permission of the Air Council and H.M. Stationery Office

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This arc touches one side of a rectangular enclosure (E) whose internal dimensions are 220 by 175 feet. An entrance-gap 50 feet wide faces east and falls in the middle of the eastern side.

Below (west of) this enclosure are fragmentary indications of two concentric ditches (F), the inner one being much the smaller. The diameter of the outer circle is 160 feet and of the inner 100 feet. This was evidently a barrow, perhaps a disc barrow.

Entering the photograph from the left-hand side can be seen a

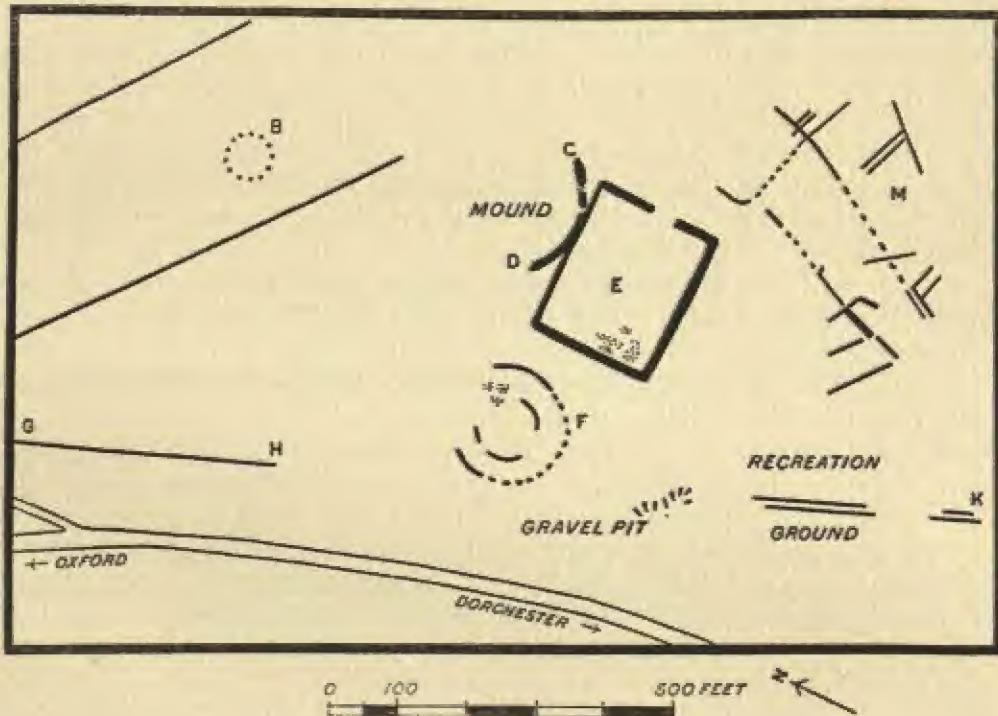


DIAGRAM EXPLAINING LOWER PART OF PLATE II

thin single dark line (GH). It is lost where it crosses the allotments ; but its alignment is continued in the recreation ground by *two* parallel lines (K), 10 feet apart. These are plainest on the print on the right of the bottom corner of the white square in the middle of the field.

Lastly, a number of indeterminate markings (M) can be seen in the top (NE) corner of the recreation ground, continuing beyond it into two adjacent fields.

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It may be gathered from the above that the neighbourhood of Dorchester is rich in remains of every period. Such finds as have been made fully bear out this conclusion. A 'cushion mace-head' of stone was found on the north side of Dorchester. [It will be illustrated in a later number of ANTIQUITY. I wish to thank Mr E. Thurlow Leeds, F.S.A., the Assistant Keeper, for calling my attention to it]. A rich burial was found in the gravel-pit shown in the lower part of plate II. This was presented to the Pitt Rivers museum.³ Roman and later remains are of course common in and around Dorchester itself, where there was a Romano-British village or small town. The mace-head is of a rare type; examples have been found at Stonehenge (*Antiquaries Journal*, 1925, v, 33-5) and in a chambered long barrow at Tormore, Arran (*Proc. Soc. Ant. Scotl.* 1902, xxxvi, p. 100, fig. 23). Only eight British specimens have been recorded, five from Scotland and three from the Thames and its neighbourhood. The presence of one here so near the big circles, and probably close to the smaller burial-circles, is very suggestive.

All these air-photographs were taken probably in less than five minutes. Five seasons could well be spent in following up the results by excavation.

Sir John Russell, Director of the Rothamsted Experimental Station, states in a letter that, whereas the roots of barley do not penetrate deeply, 'beans form clearly defined tap-roots, penetrating to a depth of 40-43 inches. . . . This year the difference [visible on the photograph between the two crops] might easily be exaggerated by the circumstance that, over most parts of the country, there came a drought after the barley had been sown, so that the root-system probably never got well developed; whilst for beans the roots had had time to grow and, during this dry spell, to exhaust the moisture from the subsoil.'

O. G. S. CRAWFORD

PREHISTORIC AGRICULTURE

Dr. Cecil Curwen's paper, published in our last number, has evidently been read with interest by many subscribers—to judge from the letters received. The following is extracted from a letter sent to

³ I am indebted to Mr Kirby, of Dorchester, for this information. The gravel pit is on land which belonged to him when the find was made; and it was through his agency that the objects were preserved.

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the Editor by the Rev. E. H. Goddard, F.S.A., Hon. Secretary of the Wiltshire Archaeological Society :

'On page 272 [of no. 3], Pliny is quoted as saying that even in his day some mountain tribes still 'ploughed' without oxen, using a sort of hoe. Pliny might have said the same today. Three years ago I saw a man at work on a small patch of potato-land, on an extremely steep, sunny, southern slope above Zermatt on the way to the glacier, probably 6000-7000 feet up. He was using a very short-handled hoe or mattock, with a blade as big as, and of the same shape as, an ordinary English navvy's shovel, *i.e.*, shield-shaped with pointed end, set on its short stout handle at a very acute angle. Standing below his work, he used, so far as I recollect, a curious sidelong stroke from right to left, so that the earth, when it left his hoe, remained on the same level and was not dragged down. This implement is, I think, always used round Zermatt and no doubt elsewhere in Switzerland for the cultivation of steep potato and rye patches on ground obviously impossible for the plough and almost equally impossible to use either spade or fork upon, without dragging all the soil down to the bottom of the slope.

'As regards stone hoes, I remember seeing, in the great Northesk collection, formerly at Winchester, two fine and beautifully made stone hoes, which were partly polished until they shone with a gloss almost if not quite equal to that on the flints, obviously in their case caused by the use of the hoe in sandy soil'.

UISNEACH

Professor R. A. S. Macalister contributes the following note:—

The Archaeological Exploration Committee of the Royal Irish Academy has for some time been engaged in the examination of the site of Uisneach, with the aid of a generous grant from the Percy Sladen Fund of the Linnaean Society. Uisneach is a low hill about 12 miles west of the town of Mullingar. It is crowned with a fortified enclosure, surrounded with a double line of rampart. The site was in ancient times a sanctuary, and the centre of important religious assemblies; it also assumed a political importance when Tuathal Teachtmhar, king of Connaught about 150 A.D., crossed the Shannon, and, capturing the region in which it stands, here established the centre of his kingdom. The excavation has revealed some interesting foundations, especially the site of a large seven-roomed house, of which the complete plan has been recovered. A few objects found on the occupation-level indicate

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a date in about the second century A.D. for this building, and the explorers consider themselves justified in believing that they have actually found the remains of the palace of king Tuathal. There are a number of difficulties still to be cleared up, and some further exploration is necessary, but it is hoped to publish through the Royal Irish Academy a full report upon this work in the course of next year. A short account by the same writer was published in the *Irish Independent* (Dublin), 21 September.

ROMAN FORT AT CARISBROOKE CASTLE

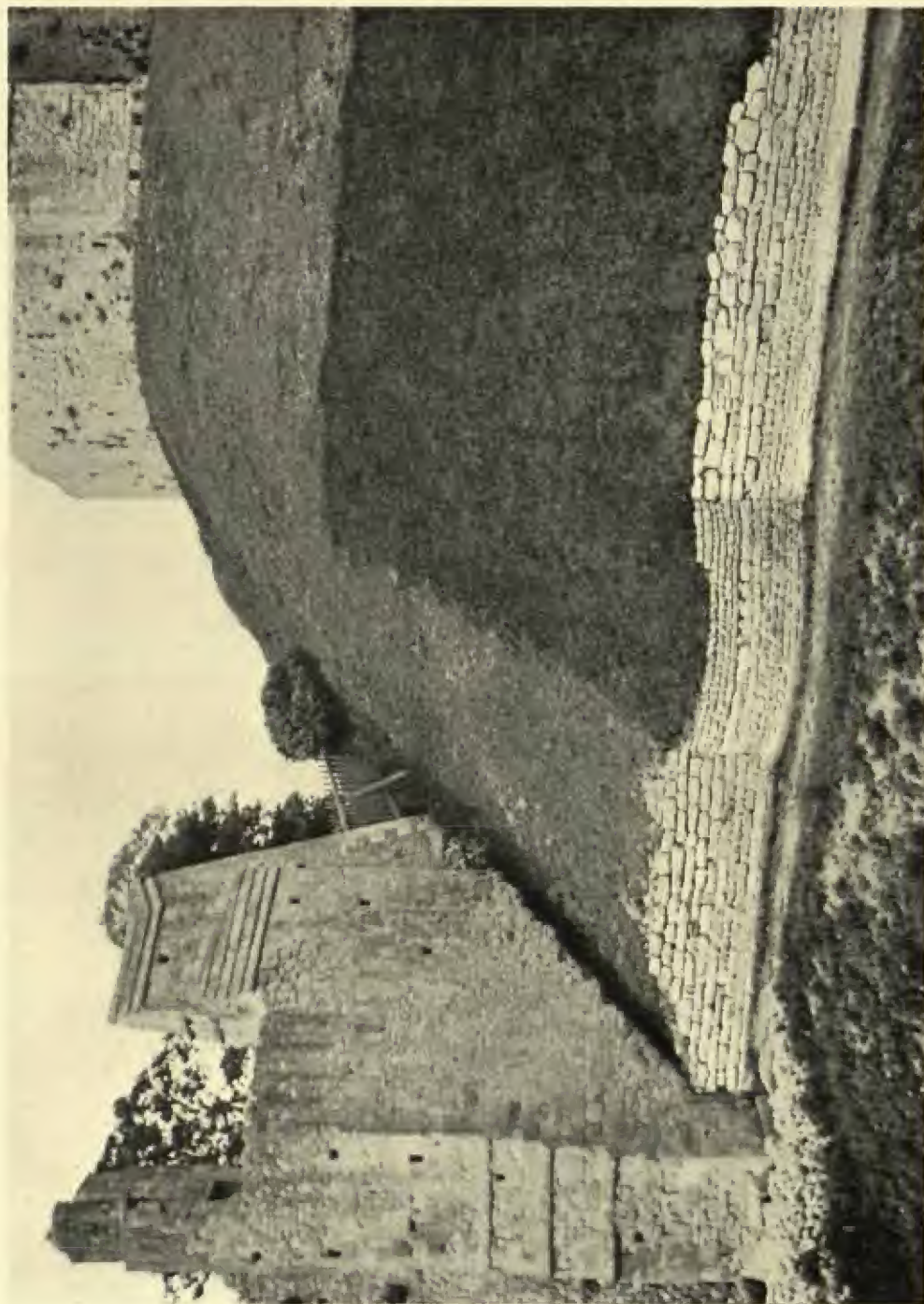
During recent work at Carisbrooke Castle, in the Isle of Wight, a most remarkable discovery was made—nothing less than a wall, older than the medieval ruins, and from its masonry clearly of Roman construction. The wall was hidden by the ramparts of the rectangular bailey; and it is evident that the medieval builders adopted its outline and built upon it. It has been followed round the greater part of the bailey, but at present only the eastern side has been uncovered. There is an entrance in the middle of this side. The accompanying view¹ shows the foot of the castle mound on which the keep stands.

Practically no other Roman remains have been found at the Castle itself, though there is a well-known Roman villa in the village below, in the garden of the vicarage, and much Roman pottery is found in the modern cemetery a quarter of a mile to the east. Presumably the wall is that of a fourth century fort; there seems to be no other explanation of its presence here. If so, it must have been a unit in the defensive system of the Saxon shore. The nearest other fort is Portchester Castle which, like all the rest—Pevensey, Lympne, Dover, Richborough, Reculver, Bradwell, Walton Castle, Burgh Castle and Brancaster—stood right on the coast. Carisbrooke Castle is, however, only a mile from the tidal point of the Medina estuary. Speculation is tempting; was this fort the headquarters of a garrison to protect the villas of the island from sea-raiders? At least half a dozen such villas are known to have existed in the island, and no doubt there were others, as yet undiscovered.

HARDKNOT CASTLE

At a recent meeting of the Cumberland and Westmorland

¹ Thanks are due to Mr J. T. Jackson for taking and supplying the photograph, and to Miss Morey for her kind offices in arranging for this to be done.



ROMAN WALL AT CARISBROOKE CASTLE
PH. J. T. JACKSON

facing p. 476



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Archaeological Society, Mr R. G. Collingwood made the following remarks (which are quoted from the *Whitehaven News*, 22 September 1927):—

‘ Tacitus tells us that Agricola placed troops along that part of the shore of Britain which faces Ireland, not so much through fear (of Irish raids) as with the intention of effecting a conquest of Ireland.

‘ Agricola certainly intended to conquer Ireland, just as he intended to conquer the whole of Scotland; and Tacitus’s phrase suggests that there was something to be afraid of—that the Irish sea-raiders who were such a terror to Britain in later years had already begun to be active in Agricola’s time. In that case, in spite of Tacitus’s protests, Agricola’s fortification of the coast would be defensive as well as offensive.

‘ Somewhere in the west, therefore, Agricola fortified the coast and constructed a naval base for his projected invasion. Where did this massing of troops take place? In Galloway?—No, not Galloway, though some writers have suggested it; because there are no Roman remains there. Was it along the Lancashire coast?—No, because the Roman forts on that coast are placed too far inland to suit the purpose of naval bases.

‘ North Wales?—There were ports on this coast, but they were not designed for either attack or defence by sea, but to keep in order the mountainous inland country. South Wales?—There are no Roman remains on the coast except at Cardiff, which does not face Ireland.

‘ Devon or Cornwall?—There is no evidence that there was any Roman occupation of these counties at this early date, at any rate on their north-western coasts.

‘ We are driven to the conclusion that Cumberland is the district referred to by Tacitus; and it follows that Agricola’s naval base was at Ravenglass, for Ravenglass is the only Cumberland harbour at which a Roman fort exists so placed as to command the harbour itself; and, moreover, Ravenglass is the only Cumberland coastal fort which is connected by a direct road with Agricola’s army base at Chester.

‘ But if the other theories are difficult to maintain, the naval base one appears to accord most satisfactorily with the facts of the case. But the naval base must be linked up with the general administration of the British province. Agricola’s north-western headquarters were at Chester, and land communication must be maintained with Chester. The route across the sands of Morecambe Bay was unsuited to military needs, being open only at low tides, and interrupted by fords. The route via Ambleside and Kendal, though tedious and rough, was at

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least a solid and fairly direct one. It diverged from the main road to Carlisle at Lancaster, and ran in three stages to Kendal, Ambleside (where relics of Agricolan times have been found) and Ravenglass. But the last stage was a long one, and if reinforcements were wanted at Ravenglass they could not quickly be got from Ambleside; therefore, if Hardknot was really built in 103, it must be regarded as an afterthought to the naval station and the road. It served three main purposes:—

- (1) As a resting place for troops going out to Ravenglass or returning to Chester.
- (2) As a signalling station with the port, which is in sight from it.
- (3) As a secondary defensive work against sudden raids, and for moving up relief troops to Ravenglass as required.

'A great deal more work needs to be done at Ravenglass before the story of this place can be fully told, and there is scope for work at Kendal also, to help in piecing the story together; but its accuracy in the main is confirmed by the fact that in the Antonine road-book of the Empire the tenth British "Iter", long a puzzle to antiquaries, was convincingly explained by Haverfield as going from Cheshire by Kendal to Ravenglass. Now why should an insignificant mountain trail like this figure in the Itineraries as a main road? No explanation has hitherto been offered; but all is clear if the Kendal-Ravenglass road was originally Agricola's strategic road to Ireland.'

A drawing of Hardknot Castle as it must have looked in Roman times appears in Mr. Collingwood's book on *Roman Britain* (Oxford, 1923. 2s 6d).

FAWLER, AS PLACE-NAME

One of the most interesting Berkshire place-names is that of Fowler, a hamlet in Kingston Lisle, about $4\frac{1}{2}$ miles west of Wantage, in the Vale of the White Horse. The early form of the name is given by Dr Grundy (Berkshire Charters: *Berks. Arch. Jour.*, xxxi, pt. 1) in a quotation from the Abingdon Cartulary, temp. Henry 1:—'Esperesholt [Sparsholt, near Kingston Lisle] quae et alio nomine vocatur *Flagaflora*'. This is a miswriting for *Fagaflora*='coloured or spotted floor'.

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In the case of the village of Fawler in Oxfordshire, which has much the same early forms as the Berkshire example (*e.g.* Fauflor in 1205) the 'coloured floor' has been identified as the mosaic pavement of a Roman villa; a Roman villa with a tessellated pavement being found near the village. (See Introduction, Survey of English Place-names, ch. viii).

In the Berkshire example there is no record of any such pavement having been discovered, but judging by analogy there should be one somewhere in the vicinity. Support is given to this by the fact that the only barrow in the immediate neighbourhood of Fawler, (in a field opposite the Kingston Lisle cemetery, above Kingston Common), is of definitely Romano-British type: a bowl-shaped mound with remains of a surrounding bank.

Our evidence, then, for the existence of a Roman villa at Fawler is somewhat scanty: indeed up to the present direct archaeological evidence is completely absent. No surface evidence of a villa, such as pottery, tiles, etc., has been found in the fields around the village (or if found it has not been recorded). We have, however, this most important place-name clue, which is a distinct pointer to a villa; and the fact that the barrow is Romano-British in form helps to support the inference that there are further Roman remains, *e.g.*, a villa with a 'faga flore,' somewhere near Fawler. Although we cannot at present say definitely that such exists, we might almost go so far as to predict that it will one day be found.

STUART PIGGOTT

RECENT WORK IN CRETE

'After eleven months' hard work', writes Professor Halbherr, (in *The Illustrated London News*, 1 October) 'under the direction of Professor Xanthoudides, the repairs to the Museum of Candia have been completed, and the famous masterpieces of Minoan art, for the fate of which the archaeological world was so anxious last year, are now to be seen in almost the same conditions as they were before the great earthquake of 26 June 1926. Even the goddess fresco from Haghia Triada, which was thrown in minute pieces to the ground and believed to be hopelessly lost, has been refitted, leaving very few gaps. The Cnossian collection of Sir Arthur Evans, save one of the most elegant painted reliefs and some fragments of minor importance, is again *au complet*, and waits only for the addition of the latest discoveries from the Palace

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and the Necropolis. With the reopening of the Museum, archaeological work has also been resumed, chiefly at Cnossos by Dr Mackenzie and the British School of Athens, and at Gortyna by the Italian Mission. In the latter place, the excavations of the Roman praetorium were continued. The Palace of the Proconsul, or Governor of Crete and Cyrene, was shown to have been one of the biggest and most luxurious residences of any provincial magistrate in the East. It was flanked by a splendid portico of Corinthian marble columns, three feet in diameter, and provided with every comfort. The Italian Mission is now planning the complete excavation of this quarter, which, according to ancient writers, was the heart of the city, extending from the Thermae, on one side, to the smaller Theatre and the Isaeum on the other. Signor Mussolini, the only one among foreign statesmen who, after the earthquake, helped the reconstruction of the world-famed Museum of Candia, has assigned to the purpose a grant of 100,000 drachmas, and is showing the deepest interest in the new archaeological survey of Crete'.

ARCHAEOLOGY IN CEYLON

It is good news that Mr Hocart, the Archaeological Commissioner for Ceylon, is tackling the problem of the island's prehistory. Practically nothing is known of the artefacts of the earlier periods, owing to the fact that no scientific excavations have been undertaken there. 'What is wanted' says Mr Hocart, 'is, first of all, stratified sites, because there alone can we establish chronology. Stratified sites are not common in Ceylon owing to the shallowness of the soil, the washaways, and, above all, the habit of building on rock. Manta [where large-scale excavations have been undertaken] is one of the few; but it is an exceptionally good one, however, for there was at least 9 feet of débris, and may be a great deal more'. Surface work during 1926 revealed pottery, beads and coins of the 13th and 14th centuries A.D. 'The excavations have further been very much complicated by previous so-called excavations, which consisted in digging holes, and throwing up the earth on the side. We had to spend a fair amount on removing the débris before we could do any work. The stuff coming from these spoil mounds is more interesting than that coming from our excavations, but is useless since its original position is not known'. (*Art and Archaeology*, October 1927, xxiv, 142).

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MAP-REVISION BY AIR-PHOTOGRAPHY

Readers of *ANTIQUITY* will be interested to hear the result of a recent experiment carried out by the Ordnance Survey. The following is extracted from the Annual Report for 1926-7, but the matter has been more fully dealt with in a special report obtainable from H.M. Stationery Office (*Report on the experimental revision of the 1:25,000 Ordnance Survey Plans with the aid of photographs taken from the Air*, 14 pages, price 4d.):—

'Photography from the air for survey purposes has made considerable advances of recent years, but there has been much doubt as to how far the method was applicable to the revision of Ordnance Survey large-scale maps; bearing in mind that besides the need for accuracy in the topographical detail, the Ordnance Survey has to go into the questions of names, administrative boundaries and other matters. It was decided that the only way to get reliable information on the subject was to put the method to a practical test, by revising a substantial area by the normal Ordnance Survey methods and at the same time to revise it independently, using air photographs, and to compare the results in respect of their accuracy, speed, and cost. Sanction was obtained for the necessary expenditure, and the experiment was carried out in an area near Eastbourne. A report on this experiment is being published. It is only necessary here to state that the result showed conclusively that air photographs are sufficiently accurate for large-scale revision, and that their use saves a considerable amount of time on the ground. At present, however, mainly owing to inexperience of the staff, the method cannot be compared economically with the normal methods. Further experiment, extending over a period of years, is required, and arrangements are being made to this end'.

THE DEVIL'S ARROWS

We are asked to publish the following correction:—

'At the recent meeting of the British Association at Leeds, excursions handbook Q was issued for members taking part in excursion no. 18 to Aldborough and the "Devil's Arrows". On pages 16 and 17 of this handbook there are remarks on this monument, and a plan of the positions of the three megaliths of which it is formed, for which the undersigned are responsible.

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'It is now found that the measurements and azimuths on which the plan was plotted are inaccurate, and that the positions of the three stones do not, as there shown, fall on the arc of a circle. The theory derived from this supposition, namely that the three stones originally formed part either of a great Stone Circle, or were the remains of the peristalith of a tumulus, must therefore be abandoned.

'The 25-inch Ordnance Survey map of the site shows that the three stones are actually almost in alignment. From the northern monolith the azimuths of the other two lie between $151^{\circ} 00'$ and $152^{\circ} 30'$, approximately, while the distance from the northern stone to the middle one is 200 feet, and from the northern to the southernmost is 570 feet (also approximately)'.

BOYLE SOMERVILLE,
Vice-Admiral

HERBERT E. WROOT.

UR OF THE CHALDEES

As we go to press Mr Woolley's first letter appears in *The Times* (15 November). We now learn that the celebrated 'dagger grave'—the richest of all—had to be left unfinished last year, through lack of funds. The excavation has been resumed. 'A large and heavy gold tassel bead . . . is the finest individual object as yet; besides this there are hundreds of gold beads and pendants, gold and silver ear-rings, masses of beads in carnelian and lapis lazuli, and a number of small shell plaques engraved with animal scenes or inlaid with geometrical patterns, probably belonging to some such object as the gaming board found last year. These things are all lying in confusion, having apparently been flung into the shaft of the grave as it was being filled up with earth. Even now we have not reached the grave level proper, and may at any moment light upon something more important than anything yet discovered'.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

Excavations are in progress at Ephesus under the direction of Professor Keil of Vienna. It is proposed to excavate the Cave of the Seven Sleepers and some catacombs. (*Le XXe Siècle*, Brussels, 19 September).



Emergency excavations were carried out within the Roman settlement of Manduessedum, in the garden of the Bull Inn, Witherley, where a garage was being built. The area dug was 36 by 106 feet and over seven hundredweight of Roman pottery (including Samian) was found, but no trace of walls. The work was supervised by Messrs. P. B. Chatwin and Bryan H. St. J. O'Neil, and a report will be published in the proceedings of the Birmingham Archaeological Society (probably to appear in January 1929).



The excavation of the Meare Lake village was continued by the Somersetshire Archaeological Society, under the direction of Dr Bulleid and Mr H. St. George Gray. The settlement seems to be perhaps a couple of generations older than the similar village at Glastonbury. Saddle-querns predominate, whereas at Glastonbury rotary querns were more common.



The Greek Archaeological Society is to undertake excavations in the island of Leucas, now called Santa Maura. Leucas is a claimant for the honour of having been the home of Odysseus, but readers of Mr Shewan's paper (pp. 402-11) and of Sir Rennell Rodd's book (to be reviewed, we hope, in our next number) will be in a position to form their own views on this debatable point.

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Mr Raleigh Radford, Secretary of the Earthworks Committee, has called attention to the discovery of a dug-out canoe in Mount's Bay, near Penzance, associated with what was said to be a Roman coin. The find is recorded in the *Journal* of the Royal Institution of Cornwall, 1871-3, iv, p. lxxxvii. This may have some bearing on the date of the final submergence of 'Lyonesse'; but one could have wished that more precise details had been recorded at the time.



A Roman cemetery of the first century B.C. is said to have been discovered outside the walls of Cadiz. The finds include cinerary urns and a 'sarcophagus' containing the skeleton of a woman. (*The Times*, 7 September).



A German expedition has been excavating on the island of Aegina and has found a stratified settlement going back to the third millennium. (*Le Gaulois*, 22 August).



The important excavations carried out by the Germans on the site of Babylon have never been published. That was an inevitable result of the war. The cases containing the finds were, however, stored at Bagdad and most fortunately survived unharmed through all the vicissitudes of the last decade. Through the good offices of the late Miss Gertrude Bell, to whom archaeology owes so much, they were recently sent to Berlin and publication is being carried out by the Deutsche Orient Gesellschaft.



The Bodleian Library in 1924 acquired some of the manuscripts of William Stukeley, the 18th century antiquary (1687-1765). Some were presented by Mr R. St. J. Vavasour, and the remainder were bought at a sale. An account of them was published in the *Bodleian Quarterly Record*, October 1924, no. 43, pp. 149, 150.



As a result of excavations it is reported that frescoes have been found in a Mycenaean palace at Thebes in Greece. (*The Times*, 27 August).

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Excavations have been made at Eston Nab, a hill-fort about five miles east of Middlesborough, Yorkshire (N.R.), under the direction of Mr Frank Elgee, of the Dorman Memorial Museum, Middlesborough. In the absence of pottery, except in association with a cremation, it would be premature to attempt to date the construction of the camp. (*North Eastern Daily Gazette*, Middlesborough, 30 September).



The Italian School of Archaeology at Athens has been excavating at Castro, in the island of Lemnos. Tombs containing geometric and classical pottery have been found ; also the clay model of a house and a gold necklace. (*The Times*, 3 October).



A rock struck by lightning fell on the road between Visrelles and Chimay in Belgium, revealing a large Frankish cemetery. The existence of this cemetery appears already to have been known, but the method of its exposure must surely be unique !



Prof. Gordon Childe gave his inaugural lecture, as the first occupant of the Abercromby Chair of Prehistoric Archaeology, at Edinburgh on 12 October 1927. He took as his subject ' Lord Abercromby's account of the first advent of metallurgists to Great Britain in the light of recent research '—in other words, the invasion of ' beaker ' peoples. (*Glasgow Herald*, and *Scotsman*, 13 October).



An article on ' Stone Age man in Kenya Colony ' by L. S. B. Leaky is published in *Nature*, 16 July, pp. 85-6.



A chariot-wheel, claimed to be Roman or a little earlier, has been found by Mr T. Russell Goddard, Curator of the Hancock Museum, Newcastle. It was lying ' in the river bank at Ryton ' ; and to judge from the photograph published, seems in excellent preservation. The hub is perfect, and there are eight spokes.

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Mr John Mathieson has recently returned from St. Kilda, where he has been during the summer making a large-scale map of the island. Although one of the British Islands, no large-scale Ordnance Map of it exists. We hope to print a note on the antiquities from Mr Mathieson's own pen.



Professor P. F. Kendall writes to say that querns of Niedermendig lava have been found both at Kirkstall Abbey and Rievaulx Abbey. This seems to prove that 'the merits of the stone were recognized in medieval England', as well as during the Romano-British period. If this proves correct, the discovery of these querns or portions of them—the material of which is so easy to recognize at sight—will no longer be evidence of the Romans.



In connexion with the last item it may be mentioned that even the 'typically Roman' flanged roof-tiles seem to have been made in medieval times. There is one in the Taunton Museum from Castle Neroche, Somerset, a site that was excavated by Mr H. St. George Gray and yielded nothing whatever of Roman date.



Mr Firth's excavations round the Pyramids of Sakkara, usually called the Step Pyramids, promise to produce great results. They are being carried out by Mr Firth in his official capacity as head of the Department of Antiquities. (*The Times*, 9 November).

Forthcoming Excavations

THE FAYUM

We are authorized to publish the following extract from a letter received from Professor Boak, Professor of Ancient History in the University of Michigan. (Pending the appointment of a successor to the late Professor Kelsey, his work as Director of Near East Research Expeditions is being carried on by a Committee).

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' A University of Michigan Expedition began work at Karanis (modern Kôm Aushim) in the Fayum during the season 1924-5, and has continued to excavate there each succeeding winter, so that we have now completed three years' work. The results of the first year's work were summed up by myself in the *Journal of Egyptian Archaeology*, as I helped to start the dig and spent the first winter on the ground. Since then no summaries have been published.

' This excavation will be continued for the following year under the field-direction of Prof. E. E. Peterson who has been in charge during the past season.

' The object of the work is not merely the discovery of papyri, but the systematic excavation of a Graeco-Roman town site in Egypt, with the object of throwing all possible light upon the social and economic history of the country during the Hellenistic-Roman period'.

Recent Museum Accessions

SCOTTISH MUSEUM, EDINBURGH

The following is a list of recent additions to the Scottish National Museum of Antiquities :—

A collection of microlithic implements (Tardenoisian) from Dryburgh, Berwickshire.

Two cinerary urns from a Bronze Age cemetery at Seamill, Ayrshire.

Cinerary urn from West Kilbride, Ayrshire.

Hoard of early Iron Age implements and ornaments, found in 1883 at Wooden, Eickford, Roxburghshire, including a bronze cheek-piece for a bridle, beautifully enamelled in red, a bronze terret-ring, two hammers, an axe, an adze, a peg-anvil, a chisel and other objects.

Stone ball with four bosses, three of which are elaborately carved, from Lumphanan, Aberdeenshire.

Stone ball with eight bosses, of unusual shape, from Ardkeeling, Morayshire.

Stone Ball with four large and three small bosses, from Huntly, Aberdeenshire.

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Slab, ornamented on one edge, with designs resembling those on beaker pottery, found near short cists at Stenness, Orkney.

Small slab bearing tree runes, found near Stenness, Orkney.

Fragment of a stone slab, ornamented on one side with curvilinear designs, possibly part of a symbol stone, from Jarlshof, Shetland.

DORCHESTER

Captain J. E. Acland, Curator of the Dorset County Museum, reports the following recent acquisitions:—

Two Greek bronze coins from Samos, found in a cottage garden at Charminster, two miles from Dorchester. About a mile to the north was a Roman villa. They were examined by Mr Henry Symonds, F.S.A., who attributes them to the first century B.C. and to about the year 225 A.D. respectively. He says:—‘It is really extraordinary that two Greek coins from the same island, but 300 years apart in date, should turn up near Dorchester. But I regard an allotment garden as a dubious provenance’.

Bowl-shaped, ornamented food-vessel; handled beaker; two bucket-shaped urns; all from a round barrow of the Bronze Age, opened September 1922, situated 200 yards east of the Dorchester-Weymouth road, on the summit of Ridgeway Hill. See ‘Early Bronze Age Beaker-pottery’, by Dr Cyril Fox, *Arch. Cambrensis*, June 1925.

Ivory object of the 13th century found at Milborne St. Andrew, 8 miles from Dorchester. See *Antiquaries Journ.*, July 1924. Silver Roman spoons; bowls engraved with a fish and with the words ‘Augustine Vivas’ (regarded as Christian), found in Dorchester with a hoard of Roman coins, 360-400 A.D., about 1898 but acquired by the Museum in 1920. See *Antiquaries Journ.*, April 1922.

NORWICH

The following are amongst the additions of recent years to the Castle Museum:—

The J. J. Colman collection of Egyptian antiquities, catalogued and described by J. E. Quibell of Cairo museum (1921); H. H. Halls collection of flint implements from local sites (1924); Sir H. Rider Haggard’s collection of Egyptian antiquities (1925); W. G. Clarke’s collection of flint implements from local sites (1926).

An important feature of the prehistoric section is a large wall-case

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arranged as an introduction to the study of early Man, the aim of which is to put before the visitor in a condensed form the salient facts bearing on the question of Man's progress, as evidenced by his physical remains, contemporary environment and handicrafts. The case is divided roughly into four sections dealing respectively with the 'pre-palaeolithic', palaeolithic, neolithic and bronze ages. Under each division are shown illustrations of animals associated with Man at that particular phase of time, accompanied by descriptions of their characteristics; casts of the crania of early human types, together with diagrams and photographs of discovery sites, burial chambers and megaliths; and, finally, stone implements, carvings on bone, pottery, and bronze artefacts, peculiar to the several epochs. A series of table cases below contain exhibits illustrating the technique of flint-flaking, the subject of patination, and the manufacture of bronze weapons and ornaments.

The Strangers' Hall Folk Museum presented to Norwich by Mr Leonard G. Bolingbroke, was formally opened to the public in July 1923. The house and collections illustrate the evolution of domestic life according to the tastes and needs of the citizens of Norwich, from the fourteenth to the eighteenth century.

The Bridewell museum of local industries presented to the City by Mr H. N. Holmes, was opened in October 1925. The collections represent the past history and present condition of the industries of Norwich and district, *e.g.*, textiles, boots and shoes, agriculture, engineering, printing, etc. The Bridewell buildings incorporate the magnificent flint-faced wall and crypts of the house of the first Mayor (1403) of Norwich—William Appleyard.

Reviews

UR EXCAVATIONS. Volume 1: AL 'UBAID, a Report on the work carried out at Al 'Ubad for the British Museum in 1919, and for the Joint Expedition in 1922-3*. By H. R. HALL and C. LEONARD WOOLLEY, with chapters by C. J. GADD and Prof. Sir ARTHUR KEITH. Oxford University Press, 1927. 63s. 244 pages and 68 plates.

This magnificent report describes the first excavations conducted in Iraq on a large scale since the conclusion of the war.

The site lies four miles to the west of Ur and a little over a hundred miles west by north of Basrah. It was discovered by Dr Hall in April 1919 and the first excavations were those which he did there himself. He was rewarded by the discovery of a remarkable copper relief of Im-dugud and other remains of the temple frieze. Such a site obviously could not be neglected when a fully equipped expedition subsequently established itself near by.

The main feature of the site is the platform of the temple of Nin-khursag, built by A-anni-padda, the second king of the First Dynasty of Ur. This fact is recorded on the foundation-tablet which was most fortunately recovered by Mr Woolley. Before this discovery it had been uncertain whether this First Dynasty really existed or was merely legendary. According to Mr Gadd (p. 140) 'A-anni-padda cannot possibly be earlier than 3100 B.C., at the very earliest, and is probably to be dated somewhat later'. The temple would then have been built not long before 3000 B.C., and the sculptured reliefs, the mosaic columns, the limestone inlays and the 'flowers' all belong to this period. The bulk of these objects were found piled up at the base of the platform where they had fallen when the temple was destroyed, perhaps (Mr Gadd suggests, p. 139) by Eannatum of Lagash about 2950 B.C. They lay scattered on either side of the ramp; and by skilful detective-work Mr Woolley deduced their probable arrangement on the platform front. The result is a fine piece of imaginative reconstruction, reproduced in colour (plate 38).

As examples of the art of this distant epoch, the limestone inlays are of the utmost interest. The famous milking-scene (which had inevitably to remain in Bagdad) is full of primitive vigour. The copper bulls and the stag of the Im-dugud relief are rather clumsy and the whole design is awkward. It represents a primitive attempt to combine several figures into a single tableau, with a failure to master the principles of composition. That is characteristic of all archaic styles. Mr Woolley rightly emphasizes the purely decorative character of the brick panelling of the sides of the platform; it can have served no structural purpose, and is plainly intended to mitigate the flatness of an unbroken surface. He suggests, however, that the prototype is to be found in wooden

* This is a misprint for '1923-4'. During 1922-3 the Joint Expedition did its first season's digging at Ur. The work at Al 'Ubad was carried out during the *second* season's work at Ur, as a subsidiary undertaking.

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panelling which, to judge from carved designs, occurred in houses and is to be found still in use today. Recessing of a more elaborate kind is found in the brick mastabas at Tarkhan in Egypt. (Petrie, *Tarkhan*).

The inscriptions are dealt with in a special chapter by Mr C. J. Gadd, of the British Museum. All of them 'may confidently be ascribed to the First Dynasty of Ur, and to an extent of time which may not exceed some fifty years' (p. 133). He shows that several independent tests give consistent results. His conclusions are of the first importance for the absolute chronology of Sumeria. If correct, and there seems no loop-hole of escape, it follows that many of the dynasties mentioned in the king-lists—which are the basis of all chronological systems—were not successive but contemporary. That would be natural in a land of city-states, sometimes independent, sometimes dominated by one or another more powerful ruler. That they were contemporary is now believed by most scholars.

Not far from the temple is a low mound with the remains of a prehistoric settlement and a cemetery. The settlement was inhabited by people who made the famous painted pottery, though Mr Woolley's excavations here have proved, as might be expected, that they also used other unpainted wares. This painted pottery was first found in Sumeria by Mr R. Campbell Thompson at Abu Shahrain in 1918. It is found also in Elam, at Susa and Musyan, and at Bander Bushire on the Persian Gulf. It seems to be characteristic of a mountain zone extending from the borders of India to Asia Minor and even possibly further west. It is now known to be associated with the earliest pictographic Sumerian writing (at Kish); but it is certainly earlier in date than the First Dynasty of Ur. The villagers at Al 'Ubaid, who used it, were agriculturists who also kept pigs, ate fish, lived in reed and mud-plastered huts, and may have had copper implements (though none were found). Mr Woolley's description tells us practically all that is known about them (pp. 149-51). They lived of course before the temple was built—probably several centuries before.

The cemetery belongs to two periods. The earliest graves found contained painted pottery, but only two can definitely be attributed to this period. It is practically certain that the whole 'cemetery' area once contained graves of the painted pottery period, of which these two are the sole survivors—all the others having been destroyed by the grave-diggers of the later period. Of these later graves about a hundred were found. They contained no painted pots, though broken fragments were abundant, doubtless the destroyed remains from the earlier graves. The date of these later graves is difficult to establish, but at least two are assigned by Mr Woolley to the First Dynasty. The graves are divided by him into three groups—early, middle and late; and he claims to have established 'a basis for the chronology of early Sumerian vase-forms which will be of permanent use' (p. 188). The graves of all these three groups fall within the first two dynasties of the third millennium.

We keep harping upon the date of these graves because until their chronological limits are fixed their meaning and implications remain obscure. Unfortunately Sir Arthur Keith's account of the skeletons is marred by a glaring chronological error. He states at the outset (p. 214) that Mr Woolley 'assigns this group [from Al 'Ubaid] to a date about the beginning of the fourth millennium B.C. or earlier'. Mr Woolley does nothing of the kind—in this book at any rate—as readers of the preceding paragraph will have learnt. No graves are assigned to an earlier date than the First Dynasty (about 3000 or 3100 B.C.), except the two (c.8 and c.9) which contained painted pottery; and of these two one contained 'no trace of a body' and the other 'only a few fragments of

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decayed bone' (p. 190). They fall, therefore, outside the scope of Sir Arthur's report. If Sir Arthur is relying upon some earlier estimate of Mr Woolley's, we must blame the editor of the whole book for allowing a very confusing inconsistency to mar it. (We are not told who *is* the editor; but a work like this, by several different people, must surely have been edited as a whole).

The most startling fact that emerges from Sir Arthur Keith's report is that the Sumerians were a long-headed people! Previously it had been supposed, from the evidence of their statuary, that they were short (or round) headed. Monsieur Boule even went so far as to classify them, with a query, as Alpines (*Les hommes fossiles*, 1923, p. 350). But statues, even portrait-heads, are utterly unsuited for anthropological measurements. The present writer once compared an alabaster portrait-head from one of the mastabas at Gizah with the skull of the woman it represented. (He was present when both were discovered in the same tomb). There was no relation between their respective head-measurements, though the alabaster head gave one the impression of being a powerful and striking representation of the dead woman. We conclude by quoting Sir Arthur's summary (p. 240):—

'The Southern Mesopotamians . . . had big, long and narrow heads; their affinities were with the peoples of the Caucasian or European type, and we may regard south-western Asia as their cradle-land [for the present]. They were akin to the predynastic people of Egypt described by Dr Fouquet, but differed from all other predynastic and dynastic Egyptians. The neolithic people of English long barrows were also related to them—perhaps distantly; the Sumerian type made its appearance in Europe in palaeolithic times, for one of the earliest of Aurignacian skulls—that found at Combe Capelle in the Dordogne, France—is near akin to the ancient Arab type'.

We shall look forward to succeeding volumes of the series, hoping that they will provide as full a record as the present one. The opinion, expressed by a reviewer in a contemporary, that this book 'should have been compressed to a smaller compass' [sic] may be set aside. We want the whole story, not 'snippets'; and we are given it here.

MONEY AND MONETARY POLICY IN EARLY TIMES. By A. R. BURNS, B.SC. (Econ.). With sixteen plates, one map, and four figures in the text. Kegan Paul, Trench, Trubner and Co., Ltd., 1927. 531 pages. Price 25s. (*The History of Civilisation*. Edited by C. K. Ogden).

The author in his preface describes his critical examination of the speculations of numismatists and others as a helpful and friendly gesture from economics to archaeology and numismatics. We are certain that the gesture will be welcomed in the same friendly spirit in which it is made. Numismatists, in particular, will be only too grateful for expert assistance on these economic problems which they have usually to attack without specialist training.

The book may be said to consist of two fairly distinct parts—chapters I–XII in which the field of ancient coinage (*i.e.*, mainly Greece and Rome, but with reference also to the great Eastern monarchies and even to China), in its first thousand years of development, is brought under survey, and such questions as the origin of the coin, the prerogative of issue, types, metals, weights, denominations, token coinage, are one by one discussed; and chapters XIII–XIV in which monetary policy as a whole is considered under four main chronological headings—the early Asiatic monarchies, Macedon and Egypt, the Greek world, the Roman Republic, and the Roman Empire.

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It is to this second section of the book that the student will turn with particular interest, though the first section is, no doubt, essential for the general reader, who cannot be expected to bring a detailed knowledge of coinage with him. Mr Burns is, of course, compelled to rely mainly on specialists for his facts, but he has shown good judgment in his choice of guides, and good sense and fairness in his criticism of them. If it is sometimes hard to see the wood for the trees, Mr Burns is hardly to blame. To criticize this section severely would be a thankless and difficult task: but occasional signs are not wanting (e.g. the use of *as* throughout where *aes* is meant) that Mr Burns has not always quite understood his authorities and might have done wisely to get a specialist to read his proofs.

A few points of detail may be noted. In chapter I the author very wisely declines to accept Laum's theory of the religious origin of all coinage. In general he is reasonably sceptical of all theories that stretch too far beyond our exact knowledge. The early Aeginetan 'tortoises' are rightly associated with Pheidon. Mr Burns has a kindness for Professor Ure's theory that the Greek tyrants were very closely associated with the development of coinage, but he should perhaps indicate that definite proof of the theory is very hard to find. On the subject of types he steers a skilful course between extreme theories of 'sacred' or of 'economic' origin.

In the sections on Roman coinage a few inaccuracies may be cited. The device of *serration* was not applied to all *denarii* in 92 B.C. (p. 58): the date must be 118 B.C. Aurelian's new mints after his reform were not *senatorial* ones (p. 72). Whether the senate actually recovered its power of issuing gold and silver under Nero (p. 102) is very doubtful: the formula, *EX S.C.*, on Nero's early coins probably represents a compromise between emperor and senate. It is unproved—and improbable—that all ancient Greek tetradrachms, irrespective of weight, were tariffed at 3 *denarii* in Asia Minor, and at 4 *denarii* in Syria (p. 104, n.4). Not all the token coins of Augustus after the first few years bore his head on the obverse (p. 131). The statement that 'the types of the Imperial coinage have not the same interest as those of the Republic' (p. 131) will astonish most Roman students. The Republican types are undoubtedly very varied and attractive. But for serious interest they cannot yet compare with the imperial. Most of what we know of them concerns the curious, but historically more or less, irrelevant history of famous Roman 'gentes'; of their reference to contemporary history we know sadly little as yet. The statement that Augustus sent base *denarii* to India has no basis in fact (p. 166). But these are but minor blemishes on a piece of very sound work, and even here Mr Burns can often shift the blame on to his authorities.

In turning to the second section of the book, we exchange one set of difficulties for another. Our trouble now is not so much a plethora of facts, as an absence of any kind of evidence—on many points on which we require information. The coins, though faithful witnesses, are dumb, and, in the loss of all ordinances governing their use, we cannot always determine what their issue implies. These inevitable difficulties Mr Burns has encountered with courage and good success; and he has succeeded in drawing some general conclusions of definite value.

In chapter XIII we may endorse the general conclusion that the early empires used coinage mainly to assist trade and maintain prestige, not to make profit out of its manipulation: the Lydian monarchy with its electrum of declining quality may be an exception to the rule. In chapter XIV the Greek states are credited with great rectitude in monetary policy: perhaps the evidence against this view, though quoted, is not appraised at quite its true value. On the vexed question of early Athenian monetary

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policy, it is clear, that, even after Mr Seltman's stimulating study, we are still some way from general agreement on the facts and their interpretation.

In chapter xv (the Roman Republic), Mr Burns sees quite rightly that the question 'What was the unit of account?' is vital to our understanding of early Republican policy. But he has not emancipated himself here from old theories that bear little relation to the facts. It is simply not true that after 268 B.C. the common unit of account was the *sestertius*. Livy shows us a reckoning in *asses*, which are not always liberal *asses*, but decline with the fall of the *as* coin. The *sestertius* reckoning only begins to come in from the time of the second Punic War. The earliest evidence of it is seen in the marks of value, 60, 40, 20 (*sestertii*) on emergency gold coins of 217 (not 241): the recorded later date must be preferred to the conjectural earlier one. Despite this initial handicap, Mr Burns writes very sanely on the reductions of the *as*. He condemns the view that a rise in the price of bronze can have had any large influence in the matter and points out that the reductions were made in time of war—when dire needs, not mere convenient adjustments, were at stake. The question of the marks of value, x, xvi and *, on the *denarius* naturally puzzles Mr. Burns, as it has puzzled every commentator up to date. Is it not probable that Pliny's statement that, after the change of value of the *denarius* to 16 *asses*, 'ten *asses* were always given for the *denarius* in the soldiers' pay', implies distinct values for the *denarius* in Rome and abroad, and that this duality of values took long to adjust and is reflected in the changing marks of value? On the semuncial reduction and the monetary policy pursued in and after the Social War, Mr Burns is not very satisfactory. The issue of plated coins certainly began not in 91 B.C., but in 122 B.C. Hence the silver, to which the *as* of half-an-ounce was related, was already seriously debased, and we cannot easily draw conclusions about the relative values of silver and copper. The semuncial reduction was a war measure, aiming primarily at the relief of the state from debt; it probably implied a reduction of all existing debts by a half. The desperate case of the state finances, due far more to the Social War, than even to the revolt of Asia under Mithradates, can be judged by the direct repudiation of 75 per cent. of all existing debts by the Lex Valeria in the year 86 B.C.

In chapter xv (the Roman Empire) the theory that Augustus tried to build up a trimetallic system on gold, silver and orichalcum is rejected, after sound criticism. On p. 412, n.3 an inaccuracy of reasoning in the explanation of the reform of Nero in the British Museum catalogue is rightly exposed. In view of the general character of Nero's later government it is idle to deny that the motive for debasing the silver was mainly immediate profit. The statement that 'it is less likely that the reduced weight of the *aureus* was fixed by law' (p. 415) is unfortunate. Such heavier *aurei* as were struck after Nero were struck within definite limits of time and place and represent deliberate attempts to return to the old standard. On p. 419 a curious misstatement has crept in; Domitian never committed the indiscretion of entitling himself 'Dominus et Deus' on his coins. On the later debasement of the *denarius* and the distresses of the third century Mr Burns writes lucidly and well. The account given of the reforms of Aurelian and Diocletian and of the later period cannot be regarded as fully satisfying; but a really effective commentary is hardly possible until numismatists have done their duty by clearing the darkness that still enwraps much of the coinage.

This is perhaps the right note on which to end the review. Mr Burns has rendered a great service to students by formulating questions and indicating defects in our knowledge, no less than by drawing many general conclusions which can be accepted as

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reliable. For its fruitfulness in suggestion of new lines of research Mr Burns's book deserves our special gratitude. The general reader will find a clear and well-planned account of a subject that goes deep into the economic and social life of antiquity and may realize, too, how like, in spite of all changes, the conditions of civilized life today are to those that prevailed in ancient Greece and Rome.

H. MATTINGLY.

THE BRITISH MUSEUM QUARTERLY. Vol. II, no. 2, September 1927. Sold at the Museum (each part 2s. or, including postage, 2s. 3d.; annual subscription 8s.; subscription for five year period £2). 22 pages and 17 plates.

JOURNAL OF THE ROYAL ANTHROPOLOGICAL INSTITUTE. Vol. 57. (January-June 1927); published by the R.A.I., 52 Upper Bedford Place, W.1. 248 pages and numerous illustrations.

IPEK. (Jahrbuch für prähistorische und ethnographische Kunst) edited by HERBERT KUHN and published by Klinkhardt and Biermann, Leipzig. 1927. 112 pages and numerous illustrations.

BULLETIN DE LA SOCIÉTÉ DE PRÉHISTOIRE DU MAROC. (Imprimerie G. Castex, Casablanca). 1st year, nos. 1 and 2. 1927. 24 pages.

We cannot attempt to review, or even to notice, all the good things that are given to the world in specialist publications. But we can, from time to time, draw attention to a few of them.

The **BRITISH MUSEUM QUARTERLY** is a pleasure to behold, and well maintains the fine traditions of its producers. (It is printed for the Trustees by the Oxford University Press). The present number contains the first published illustrations of last season's work at Ur (1926-7), including the gold dagger and adze-head, gaming-board, shell-plaques and carved grave-stela showing an empty chariot drawn by griffins. Dr Hall, in the accompanying text, points out that this is the oldest representation of a chariot, and that it dates to nearly 3500 B.C. As one would have expected, the wheel has no spokes, but is solid, though not made in one piece. Amongst the other objects is a 'square stamp-seal of the same design as the "Indo-Babylonian" seals found at Harappa in the Punjab, but with a cuneiform inscription, which is decisive as to the contemporary connexion of the Sumerians with India'.

The outstanding article in the **JOURNAL OF THE ROYAL ANTHROPOLOGICAL INSTITUTE** is Mr Harold Peake's presidential address on 'The Beginning of Civilization'. Mr Peake deals mainly with the origin of corn, but touches also on the problems of the first domestication of animals, the invention of pottery and the discovery of metal. Much fresh information is brought for the first time within the range of the general reader and the address forms a valuable companion to Dr Cecil Curwen's article in our September number (**ANTIQUITY**, i, 261-89). Mr van Riet Lowe's account of stone huts in the Orange Free State is a valuable study of the (recent) archaeology of Bantu remains. It is illustrated, and contains also plans and a distribution-map.

IPEK is still little known in this country and deserves fuller recognition. It is admirably produced and lavishly illustrated. The French, English, Spanish and Italian languages are admitted in addition to German. The present number contains two articles in English—one on four examples of palaeolithic art from the Creswell caves (Derbyshire) by Mr A. Leslie Armstrong; and another on the octopus in the ancient art of the Chiriqui (N. America) by Mr C. G. MacCurdy. There is a long account

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(in German) of N. American drawings on skins, by Ernst Vatter. The shorter notes include one by the Editor on the recent discovery of painted pottery in China, and one by Dr Leonhard Franz on an Iron Age urn with the (human) 'triangle-figure' found in Lower Austria. There are thirteen pages of review-matter.

We extend a cordial welcome to the newly founded SOCIETY OF PREHISTORY IN MOROCCO. The land is rich in antiquities and the surface only has been scratched. A very sensible beginning has been made by publishing a list of sites in the vicinity of Casablanca itself. This preliminary survey will be continued and extended. Such a method is thoroughly sound and well adapted to a young society containing, in the Editor's words, 'plus de gens de bonne volonté que de préhistoriens avertis'. The record of fact precedes fuller interpretation of the objects found, and the excavation of sites. If we might be allowed to add to our congratulations on this excellent start a suggestion for future work, it would be that plans should be made and published of the dolmens, artificial burial-caves (*grottes*), prehistoric hill-forts and similar remains. We wish the Society a long and prosperous career.

HARMSWORTH'S 'UNIVERSAL HISTORY'. Edited by J. A. HAMMERTON and published in about 45 fortnightly parts. Nos. 1-3. Price 1s. 3d. each.

The first three parts of this new Universal History attain a high standard of excellence. The contributors are masters of their respective subjects, and write with first-hand knowledge. The illustrations are, for the most part, well-chosen and well reproduced.

The first number opens with a discussion on the use of history, by Professor G. M. Trevelyan. It is followed by 18 pages by Sir Flinders Petrie on 'The Aims and Methods of Archaeology, and its rôle in the expanding and enriching of Historical Knowledge'. Some of the professor's remarks on the early civilizations of Egypt touch on controversial subjects, which are, we venture to think, not yet ready for popular presentation.

The next section, chapter I, opens at the beginning of things with what is, in our opinion, the finest contribution that has yet been made to the subject. Dr Jeans, the Secretary of the Royal Society, needs no words of praise from archaeologists, and he is probably well known by name to readers of ANTIQUITY. His chapter deals with the same subject as his article in *Nature* (supplement, 1 March 1924), but the presentation here given is clearer than the earlier one. Dr Jeans concludes that 'if solar systems come into being at the rate of one every 6,000 million years, and if each contains ten planets suitable for life and destined ultimately to be the abode of life, then civilizations come into existence at an average rate of one every 600 million years. This gives a very large probability that our terrestrial civilization, with only 10,000 years to its credit, is the youngest in the whole colony of stars. It is likely to be the youngest in the whole of space. . . . This conclusion, from which no escape seems possible, leads to at least one reflection of practical interest. We are apt to think of ourselves as living at the end of time'. But actually, Dr Jeans suggests, we are merely at the beginning of things. 'As the youngest civilization in the sky we know least and have the most to learn. Almost endlessly the vista of future ages stretches before us in which the race, if not the individual, may learn all there is to know, and perfect itself accordingly'.

Chapters II and III give an account of life before the advent of Man. Human affairs begin to predominate in the second number, which contains contributions on the 'Evolution of Man' by Sir Arthur Keith; 'Primitive Communities and Origins of

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Races' by Professor Fleure, and 'Primitive Crafts in Peace and War' by Dr Marett. Many of the illustrations are new, and there is a refreshing mixture of ancient and modern art which is quite as it should be if we are to understand the ancient aright.

In the third number, the illustrations of palaeolithic art predominate. Professor John Fraser gives an interesting account of the origin and importance of language; and Professor Myres writes on the influence of climate and geography on history. Professor Elliot Smith contributes the usual remarks on 'vitality residing in red ochre' and the 'source of life' and 'cowrie shells', and other 'irrational beliefs about the unseen world'.

ANCIENT EGYPTIAN MATERIALS. By A. LUCAS. Edward Arnold and Co. 1926. 242 pages. 7s. 6d.

This is an invaluable monograph which every archaeologist should possess. The roots of archaeology are to be found in Egypt and Mesopotamia, and any book which deals authoritatively, as this does, with the materials of which archaeological remains consist, should be studied with great care. Mr Lucas gives a chapter each to such subjects as building materials; fine arts, glass and pottery; metals; and many other materials. We note that African ores were probably adequate to furnish most of the supply of ancient Egyptian gold; that the much discussed fragment of iron from the Great Pyramid is considered by the author to deserve serious attention; and that tin does not appear in a pure form before the 18th Dynasty, and was used, amongst other things, for imparting a white opaque colour to glass.

TWO THOLOS TOMBS AT BODIÀ, IN THE EASTERN PART OF TRIPHYLIA.

By NATAN SVENSSON. Royal Society of Humane Letters, Lund. 1927.

This is an account in English of the excavations of two Tholos tombs in the Peloponnese. Unfortunately they had both been rifled, but the plans are interesting, and a few minor remains were found. None of these date before the late Mycenaean period, and the majority of the potsherds could be definitely assigned to late Helladic III (1400-1200 B.C.). The writer concludes that tomb 2 dates shortly before 1300 B.C. and represents a late survival in an out of the way region of the civilization which produced the Treasury of Atreus and the tomb of Clytemnestra at Mycenae.

IN ROMAN SCOTLAND. By JESSIE MOTHERSOLE. John Lane. 282 pages. 10s. 6d.

Miss Mothersole has already made a name for herself as a popular but accurate writer on Roman Britain. Her reputation will be increased by this little book which, without pretending to any originality or profundity of treatment, will be found invaluable to those to whom the subject is new. The treatment is not historical but geographical, and even so, it is not exhaustive. We miss, for instance, any reference to the camp at Kirkbuddo; and the temporary camp at Little Clyde deserves more than six lines. However, there is a freshness about the book which is very attractive, and we cordially recommend it to our readers.

ESSAYS IN AEGEAN ARCHAEOLOGY. Presented to Sir Arthur Evans in honour of his 75th birthday. Edited by Stanley Casson. Oxford University Press. 1927. 15s.

It is given to few people to discover, as Sir Arthur Evans discovered more than a

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quarter of a century ago, the remains of an unknown and almost unsuspected civilization. Nothing like it had happened before since the days of Schliemann and nothing like it has occurred since until Sir John Marshall's discoveries in the Indus Valley, and those of the British Museum in Lower Mesopotamia. In his preliminary remarks Dr Farnell says 'there is not a single chapter of Greek studies, not a branch of Mediterranean archaeology, that is not in some way indebted to your work'. The truth of this is apparent in the volume before us.

Professor Gordon Childe writes on 'The Minoan influence on the Danubian Bronze Age', a subject which he has made his own. Dr H. R. Hall argues that Keftiu must represent Cretans rather than the peoples of the opposite coast of Cilicia; and writes on a predynastic double axe of flint. Dr Hogarth suggests that the Aegean figurines which are so familiar are to be regarded rather as *ushabtis* than as representations of a nature goddess—that, in fact, they were intended to accompany the dead man into the next world. Professor Peet contributes some remarks on an Egyptian writing-board of the early 18th dynasty (as he suggests) bearing Keftiu names. Unfortunately, the results of a study of these names is mainly negative, but some day it may take its place in the decipherment of the still unknown Cretan language. Professor Sayce writes on references to Crete in Babylonian and Old Testament texts.

The book is, of course, beautifully printed.

PRIMITIVE HEARTHS IN THE PYRENEES. By RUTH OTIS SAWTELL and IDA TREAT. Appleton and Company. 1927. 307 pages. Illustrated.

In these days when there is no end to the making of popular books on prehistory, it is pleasing to come on one that is at the same time well written and well informed. This book gives a clear and interesting account of a summer's digging in the Tuto Biouleto, or Violet Hole, at Montardit in the Ariège, culminating in the discovery of the first Azilian skeleton to be unearthed in France. The chapters which describe the excavation alternate with vivid and entertaining accounts of visits to the prehistoric painted caves of the region, and descriptions of the people and country of the Pyrenees of Ariège. Two chapters, inserted just where they are needed to make the story of the excavation comprehensible to the ordinary reader, give a clear and on the whole accurate account of the archaeology and physical anthropology of the Palaeolithic and Mesolithic periods.

The authors are to be congratulated on their fine discovery, which is soon to be described scientifically, and on having produced a delightful book. Those who do not know the caves of the Pyrenees will be able to realize something of their fascination, and those who do will rejoice to pass again in such pleasant company over ground on which they have spent so many happy hours.

D. A. E. GARROD.

THE TOMB OF TUT-ANKH-AMEN, VOL. II. By HOWARD CARTER. Cassell and Co. 1927. pp. 269 and 153 illustrations. 31s. 6d.

It is no exaggeration to say that the discovery of the tomb of Tut-ankh-Amen in an almost intact condition was the most important and popular discovery of the century. The book under review has been written to satisfy the natural craving of the public for a more detailed account of the excavation than they were able to find in the newspaper reports. It is at the same time a 'popular' book and a detailed report for the eyes of archaeologists; the style being not too scientific for the man in the street, nor too 'popular' for the scientist. The more fully an archaeological report is illustrated

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the better it fulfils its function ; and the 153 illustrations in this book, from the excellent photographs by Mr Burton, are so good that only one criticism can be made ;—it is that the book would have been improved if the plates had been inserted opposite the detailed account of the objects illustrated, instead of being lumped together at the end. But this no doubt would have considerably increased the expense.

Mr Carter sees in Egyptian art a finesse within simplicity, with the objects treated individually and without perspective—a traditional art that was essentially religious, and was copied and repeated so that it tended to suffer.

The patience, dexterity and mechanical contrivings displayed by the excavators in the dismantling of the four shrines and the three coffins that almost filled the small and simple burial chamber were rewarded by the success of their labours and the small amount of injury to the objects. Mr Carter reconstructs the furnishing of the tomb, and shows that the sections of the shrines must have been placed against the walls, the coffins set in position, the shrine erected, the partition wall built, and lastly the walls of the burial chamber decorated. He pays tribute to the craftsmanship of the joiners, but shows that the undertakers were slovenly in their work. Luckily the thieves who entered the tomb did not penetrate further than the first shrine. The objects can be classified as personal and religious : some of the former had been used by the Pharaoh, while the latter had been specially made for the funeral. The fact that so many of the funerary objects must have been brought to the tomb many days after the burial suggests that there may have been a store for them near by. But possibly the funeral procession was not such a gorgeous spectacle as might be supposed from the wealth found in the tomb. From the decoration on the walls we learn that the succeeding Pharaoh acted as Sem priest during the obsequies and that the bier was drawn along by courtiers and not by oxen. Among the great number of interesting and exquisite objects carefully described none are more important than the three objects of iron, namely the head-rest, the dagger with iron blade, and the iron Uzat eye in the gold bangle. This is ' the first definite proof of the introduction of that very important metal into Egypt '. It is suggested that it was introduced by the Hittites who at a later date sent a shipment of the metal and an iron sword to Rameses.

As with men, so with archaeological books, long appendices enhance their scientific interest. A third of the text in this book is taken up with specialists' reports. Dr Derry, after describing the various processes of mummification gives as full an account as possible, under the circumstances, of the mummy. The skull was of a peculiar shape, and corresponded so closely to that of his father-in-law Akhenaten that it can be presumed that Tut-ankh-Amen married his half-sister in order to establish his eligibility to the throne. He was just over 18 years of age when he died, but there are no clues as to the cause of death. Professor Newberry made a detailed examination of the flowers in the garlands and came to the conclusion that the funeral took place between the middle of March and the end of April. A report on the chemistry of the tomb is given by Mr Lucas who states that lime was not used for any purpose before the time of the Roman occupation. One piece of lead was found. Dr Alexander Scott writes on the preservation and strengthening of the objects, and, as the result of experiment, finds that turpene dissolved in xylol is the best agent. All the textiles were of pure flax, no cotton having been used. Dr Plenderleith is responsible for appendix v.

This book will be widely read, and it is hoped that the glamour of the tomb will not distract from the commendation due to the excavators for the thoroughness of their work and the excellence of their report.

R. C. C. CLAY.

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THE FORMATION OF THE GREEK PEOPLE. By A. JARDÉ, Professor at the Lycée Lakanal. Translated by M. R. Dobie. Kegan Paul, Trench, Trubner and Co. 1926. pp. xvi, 359. 16s.

This book is one volume of a series edited by C. K. Ogden describing the history of civilization from prehistoric times to the present day, and also has a place in the French series *L'Évolution de l'Humanité* edited by Henri Berr. It is divided into four sections—The Country, the Peoples, Hellenic Expansion, and Hellenic Unity. Of these, the first deals mainly with geographical and climatic conditions and their relations to human work and progress. The descriptions are lucid, and the inferences for the most part sound, though there is here and there a tendency to overstatement. Thus the assertion that 'the Greek mountains were no barrier to travel' (p. 11) is true up to a certain point; but the experience of all ages has shown that a hill of 6000 to 8000 feet in height is at any rate an obstacle, if not a barrier, to free intercourse between communities living on opposite sides of it; and those who have sailed the Aegean in winter may ask for some modification of the author's statement that 'it is not a stormy sea' (p. 32).

In reviewing the current theories as to the origin of the Greek peoples, M. Jardé is reduced to scepticism. He recognizes the claims of language, archaeology and physical anthropology, as constituting bases for classification, but finds it difficult to co-ordinate them. The remaining sections of the book describe the nature and results of colonization and the spirit of Hellenism. A short summary of the decline of the City State from 431 B.C. to the establishment of the Macedonian rule concludes a book which, though it contains little that is original, is well written and constructed, and presents many of the results of recent research in a form convenient to the general reader. It should be added that the work is scholarly, the bibliography extensive, and the references to authority copious.

J. F. DOBSON.

THE CAPEL GARMON CHAMBERED LONG CAIRN. By W. J. HEMP, F.S.A.
Published in *Archæologia Cambrensis*, June 1927.

This long cairn consisted of an inner wall roughly rectangular in shape with three straight sides, two horns flanking a false entrance on the east, and a concealed entrance on the south leading by a gallery to a rectangular central chamber from the east and west sides of which opened secondary chambers roughly circular in plan. The whole structure was formerly covered by a mound of stones, those at the top being larger than those at the bottom. The walls of the gallery and of the chambers were formed by upright stones with dry walling between them. The walls of the southern portion of the gallery projected inwards and formerly supported a corbelled roof, while the northern portion of the gallery and the three chambers were roofed with large covering slabs obtained from a crag immediately to the south-west of the cairn. The western chamber had once functioned as a stable and the chambers had been disturbed by former excavations, but the floor of the gallery had fortunately remained intact. Five fragments of beaker pottery representing two different vessels and a fragment of plain dark coarse pottery with thickened and slightly flattened rim were discovered on the original floor of the northern portion of the gallery. This northern end widened out and contained, besides the pottery, a post hole and an area of burning on the natural clay soil. This place, Mr Hemp suggests, may have corresponded with an antechamber which is usually situated between the horns, but

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in this instance the area between the horns was occupied by the material of the mound. The dry-walling was made secure by the lower courses being tightly wedged between stone pegs driven into the soil diagonally under the foundations, and the inner wall was prevented from spreading by stones driven into the ground at a raking angle. All the uprights were embedded in the natural clay and wedged with small stones.

Dr Fox describes the pottery and suggests that the beaker fragments dated from the middle of the beaker period since their situation was far removed from the areas first occupied by the beaker-folk. An impressed oval ornament on one fragment suggests the 'maggot' pattern. Reference is made to the finding of beaker pottery in the megalithic structures at West Kennet and Tinkins Wood, St. Nicholas, Glamorgan. Beakers, however, have frequently been found associated with true so-called Neolithic pottery, and reference may be made to Peterborough, Christchurch, Windmill Hill, Rowberrow Cavern, Sun Hole and Chelm's Combe in the Mendips, Gullane Bay, and Mortlake where the beaker pottery was sealed under the same clayey stratum as the famous bowl. There is necessarily an overlap between any two contiguous cultures, but the pre-beaker reign of the so-called Neolithic pottery cannot have been very long.

R. C. C. CLAY.

DEMOCRACY IN THE ANCIENT WORLD. By T. R. GLOVER. Cambridge University Press. 1927. pp. 263. 10s. 6d.

Mr Glover, while not professing to be a historian, has succeeded in presenting much useful historical information in an acceptable form. He has set himself the task of tracing the history of democracy from the sowing of the seed in Homeric times to its complete eradication under the early Roman Empire. We learn from the introduction that the first four chapters were lectures given at the Rice Institute, Houston, Texas; so that the original scope of the work was limited to the rise and fall of democracy in Greece. The remaining chapters, which form the larger portion of the book, retain the form and style of lectures, and, though to some extent each is complete in itself fit on naturally one to another. The early chapters are perhaps the most interesting; they are discursive, but not excessively so. We listen to the murmurs of Thersites and his successors, and Mr Glover explains their origin and their tendency. He lays stress on economic considerations, and makes his readers realize very fully how the spectre of famine was a constant menace before the eyes of ancient communities. Chapters on the Homeric World and the World after Homer lead up to the Periclean Age, where we have the 'miracle' of an assembly governing an empire, a state of things which was only possible under exceptional circumstances, and has never been repeated. With the downfall of the Athenian Empire we have the decline of democracy and throughout the rest of the book we are chasing a bird on the wing. Democratic ideals, it is true, had not perished, and the Achaean League, which made the first serious attempt at federal democracy, was at any rate a noble failure; but Greek liberty was under Alexander and his successors a pious fraud, and under the Romans a specious mockery. Either the spirit or the fortune of Rome was adverse to democracy and though we find the same struggle for popular freedom in Italy as in Greece, its ideals are never realized. The passing of the *Lex Hortensia* in 287 B.C., sometimes hailed as the 'final triumph of democracy', actually marks the beginning of the ascendancy of the Senate; and the final overthrow of senatorial oligarchy led only to the establishment of the Empire. Where, then, is democracy to be found? Only,

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it would seem, at Athens in the time of Pericles ; and we must not forget that even that constitution was regarded by a contemporary historian as actually the sovereignty of one leading man.

J. F. DOBSON.

THE CULTURE OF THE BABYLONIANS. By LEON LEGRAIN. University Museum, Philadelphia. 1925. 2v. [London Agents : Bernard Quaritch]. 63s.

ROYAL INSCRIPTIONS AND FRAGMENTS FROM NIPPUR AND BABYLON. By LEON LEGRAIN. University Museum, Philadelphia. 1926. [London Agents : Bernard Quaritch]. 21s.

These three volumes are a credit alike to both author and University Museum. In both matter and form they are of the highest order. The Babylonian and Persian seals, nearly eleven hundred in number, which are preserved in the University Museum of Philadelphia have been exhaustively catalogued, classified and explained by Dr Legrain, and his work in conjunction with Dr Contenau's equally exhaustive work on the seals in the Louvre and other collections in Paris has laid the foundation of the scientific study of a new branch of research. The seals are mainly Babylonian, many of them going back to Sumerian times ; but there are also a good many which belong to the so-called Syrian class and have their origin in Mesopotamia.

The cylindrical seal was of Babylonian invention. The alluvial plain of Babylonia was devoid of stone ; every pebble, therefore, was precious and the writing material was naturally clay. The use of a rounded pebble, accordingly, which could be rolled over the clay was an obvious way of imprinting a name or design upon it. As I have long since insisted, the employment of the seal-cylinder, like that of clay as a writing material, is a proof of Babylonian influence, and consequently its existence among the early Egyptians must indicate connexion with the culture of Babylonia.

Dr Legrain's introduction is full of valuable material. In his chapter on early Sumerian religion he has much that is new and convincing, more especially in connexion with what must have been the forms and signification of the primitive pictographic signs out of which the cursive cuneiform developed. His explanation of the ideographs which denoted the various cities of Sumerian Babylonia is enlightening. Thus he points out that 'Erech' was represented by a 'large abode of mud and reeds', while 'Ur' is the same enclosure but with a great buckled lance, *urigallu*, planted on the terrace, in honour of Nannar, the god of the New Moon'. In the case of Larsa a picture of the sun-disk took the place of that of a lance. The emblem of Eridu was a great pole ; that was also the emblem of Sippara combined with the sign of crossed roads. Elam, 'the high-lands', had a mountain pine as its symbol. Doubtless the heart of the city, as Dr Legrain says, was where the pole stood with its divine emblem. In early Sumer, as in Asia Minor, the emblem on the sacred pole was the object of worship ; anthropomorphic imagery was introduced by the Semites.

The two volumes are provided with an excellent index. I have noticed very few misprints and but little to question in Dr Legrain's statements. His 'Hittite characters,' however, are non-existent, excepting possibly in no. 498 ; those in no. 499 have a faint resemblance to Cypriote letters, while no. 1032 is Gnostic.

The third volume is a welcome addition to our knowledge of early Babylonian history. Apart from a long inscription of Nebuchadnezzar which is published in full for the first time, it consists of 'gleanings' in the shape of early inscriptions or fragments

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which have escaped notice in previous publications of the Museum texts. The most important of these are inscriptions of Sargon of Akkad and his later successor Rimus which complete the annalistic records of those kings. There are two misprints in the ninth column of the text; 'with Nagurzam' should be 'in Nagurzam', the name of a place, and 'Yarmuli' is printed instead of Yarmuti. Yarmuti is probably the Yarimuta of the Tel el-Amarna letters, the name of which seems to be preserved in that of Armuthia south of Killiz. The whole of the passage in which Yarmuti is mentioned is historically important. Sargon states that he had 'won 34 battles and destroyed the fortresses as far as the front of the sea. The ships of Melukhkha, of Magan and of Dilmun he collected before the city of Akkad; in Tutuli (the modern Hit) he paid worship to the god Dagon (who) gave him the Upper Country: Mari, Yarmuti and Ibla, as far as the Cedar-forest (of the Amanus) and the Silver mountains'. Mari was near Dêr ez-Zor and the Silver mountains must be the Ala-Dagh, where at Bereketli Maden there are extensive remains of ancient silver mines. Sir W. Ramsay tells me that as late as the eighties he found work still going on there. A little to the east, at Farash, perhaps the Barsakhanda or Burus-khatim ('Burus of Silver') of the Sargonic, Hittite and Cappadocian tablets, old iron mines have also been discovered. The deposits of Bereketli Maden appear to have been the richest in Asia Minor. The occupation of the country by Sargon and his successors opened both the silver and the copper mines of the Taurus to the Babylonian firms, and the Cappadocian cuneiform tablets which belong to the age of the third dynasty of Ur (2300 B.C.) show that they took full advantage of it. But the fact that *Khatti* was the Hittite word for 'silver' would imply that the Hittites had been the first to make the existence of these silver mines known to the Oriental world.

A. H. SAYCE.

LES TABLETTES DE KERKOUK ET LES ORIGINES DE LA CIVILISATION ASSYRIENNE. By G. CONTENAU. Geuthner, Paris. 1926.

The amount of solid work and research which Dr Contenau manages to accomplish is amazing. His range of subject is large and he is always 'up-to-date'. His monograph on the newly discovered tablets of Kerkûk is not only a valuable contribution to Assyriology; it is also of considerable interest to all those who occupy themselves with the earlier history of the East.

Kerkûk is the capital of one of the districts in the province of Mosul on the eastern bank of the Tigris and owes its importance to its position at the intersection of the high-roads to Hamadan and Bagdad as well as to its proximity to the oil-springs which, as recent excavations have shown, were utilized as far back as the neolithic epoch. Its ancient name, as we now know, was Arapkha, the capital of the classical Arrapakhitis.

Most of the tablets belong to the 14th century B.C. At that time the country had become a dependency of Assyria, and the upper classes had adopted the Semitic language of the ruling state, at all events for literary purposes. But their names continued, with few exceptions, to be native.

The names show relationship to those of Mitannian Mesopotamia as well as to those of the founders of Assur, the future capital of Assyria, and are linked on to names characteristic of northern Syria and south-eastern Asia Minor. We are now beginning to know something about the earlier history of the Mesopotamian regions and the rise of the Assyrian power. Assyria, as Dr Contenau points out, consisted of various elements, in which the Semitic was the latest and perhaps ethnologically the least.

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Originally dialects allied to the Mitannian of northern Mesopotamia were spoken on both sides of the Tigris and even of the Euphrates ; Gutium or Kurdistan was included in the Mitannian zone, and Aleppo was a Mitannian principality.

The Sumerians of Babylonia gave the zone the name of Subari, 'the Upper Country' or 'Plateau', in contradistinction to Nimma, the Semitic Elamu or 'Highlands'. Kerkûk, Assyria, Mesopotamia, north-western Syria, all alike were included in Subari, which in the lexical tablets where Subarian words are interpreted is represented by the abbreviation *Su*. Somewhere about 3000 B.C. the Semites occupied a large portion of the territory, establishing a military government at Assur and introducing as a literary language the Semitic dialect of Babylonia along with the Babylonian script. The colloquial Semitic dialect of Assyria remained to the end distinct from the Semitic language of Babylonia, though as time went on it naturally tended to become more and more like the language of the schools.

Before the time of Sargon of Akkad (2750 B.C.) Semitic, Assyrian and Babylonian traders had made their way to the banks of the Halys in Cappadocia, Semitic colonies were established there and Babylonian firms worked the silver and copper mines of the Taurus. As the centuries progressed the Semitisation of Western Asia became complete ; in Babylonia Sumerian had long been superseded by Semitic Babylonian, and eventually the Semitic language of Assyria dominated the whole of Subari.

Dr Contenau's book is richly illustrated, and the pages of it devoted to a comparison of the designs on the Kerkûk seal-cylinders with those on the seals of Cappadocia and northern Syria are very illuminating. There is no higher authority on the subject than himself, and we can therefore accept his conclusions which derive the art of Kerkûk from that of Cappadocia, Cappadocian art being itself derived from Babylonia about 2500 B.C., while the art of the Kerkûk seals leads on to that of Assyria about 1500 B.C. Babylonian and Hittite glyptic art, on the other hand, are each of them independently derived from Sumer. But it must be remembered that the art of the Sumerian seals was itself largely affected by that of northern Syria, which together with the art of Sumer can be traced back to Susa.

Dr Contenau tells us (p. 11) that the people of Sumer were brachycephalic (short-headed) with long noses. That is certainly the conclusion we should draw from their statuary. But the examination by Sir Arthur Keith of the skulls found in the early cemeteries of Ur has proved that it must be, at any rate, modified. The noses are long, it is true, but so far from being brachycephalic the skulls are highly dolicocephalic (long-headed), those of the earliest period being remarkably so. While 'in width of head the people who were living in Ur early in the second millennium B.C. resembled Egyptians and Panjâbis (they) differed in this respect from the wider-headed people who were buried at El-'Ubaïd early in the fourth millennium B.C.' Even so, however, 'their affinities were with the peoples of the Caucasian or European type', as well as with 'the Neolithic people of the English long barrows'. 'If they were living today we should call them Arabs' (*Ur Excavations*, 1, 240)*.

A. H. SAYCE.

**IMHOTEP, THE VIZIER AND PHYSICIAN OF KING ZOSER AND
AFTERWARDS THE EGYPTIAN GOD OF MEDICINE.** By JAMIESON
B. HURRY. Oxford University Press. 1926. pp. 134. 7s. 6d.

Dr Hurry's book on Imhotep is a model of what such a monograph should be.

* See also the review of this book on p. 492 where the date here mentioned is discussed.—ED.

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It is complete, well-illustrated, clear in style and 'up-to-date'. Unfortunately there is not much to be said about Imhotep himself; even his tomb is unknown, and his medical works have perished. But on the architectural side he has left an enduring monument of himself at Saqqara where the recent sensational discoveries of Mr Firth have brought to light the most amazing monument of architecture in the whole land of Egypt. Instead of its marking the beginning of stone building it must have come at the end of long centuries of development, like the script which accompanies it and which is already as fully developed as it was in the age of the twelfth dynasty. Indeed the forms of the hieroglyphs found on the base of the statue of Zoser, where the king places his chief architect almost on a footing of equality with himself, like the forms modelled in gold and inlaid in the canopy of the mother of Kheops, are to my eyes the most beautiful ever executed except perhaps in the twelfth dynasty period.

But it is with Imhotep as the physician and not as the architect that Dr Hurry is chiefly interested. His fifth chapter on Ancient Egyptian Medicine will probably be a surprise to a good many of his readers. The medical papyri which have been recovered show that even at an early date medical practice was wonderfully advanced, while on the surgical side 'there was an accurate knowledge of the skeleton and of the method of treating fractures successfully'. 'At least 15 distinct diseases of the abdomen, 11 of the bladder, 10 of the rectum and anus, 29 of the eyes, 6 of the ears, 18 of the skin were diagnosed and treated on definite principles'. Doubtless a good many magical formulae were mixed with the recipes, but modern medicine is not altogether free from such curative adjuncts, which, indeed, as shown by the cures at holy wells and the like, are often productive of more benefit than the whole pharmacopoeia of scientific medicine. It is interesting, by the way, to learn that 'from the mythological fight between Horus and Set, in which Horus lost an eye, is derived the sign which still figures at the head of our present-day medical prescriptions, and which in its original form resembled a human eye'.

The story of the seven years' famine in the reign of Zoser recorded on the rocks of Sehêl as well as the story of Nechantis recounted by Dr Hurry must be regarded as forgeries of the Graeco-Roman period, when attempts were made by the priesthoods to secure endowments in land from the government on the ground that they had been given to them in the earliest days of the monarchy. The stories reflect theological conceptions and relations between the priesthoods and the king which had no existence in the time of the Old Empire and belong essentially to the Ptolemaic epoch. Imhotep, like Amenophis the son of Apis, did not become a god until the period when a belief in apotheosis had been introduced into Egypt by Lydian mercenaries from Asia Minor and the conquest of the country by the Assyrio-Babylonians in the seventh century B.C. It is possible that in the case of Imhotep his transformation into a deity was assisted by the destruction of the chief monument which was attributed to him as a man. The *graffiti* left by visitors on the walls of his buildings at Saqqara cease with the end of the Saitic dynasty and it would therefore appear that they formed one of the temples which according to Herodotus were destroyed by Cambyes after his conquest of Egypt.

A. H. SAYCE.

PREHISTORIC MAN. By KEITH HENDERSON. Chatto and Windus. 1927. pp. 267, illustrations. 7s. 6d.

To accompany the author and his 'group of eminent Professors' on their journey of two hundred and sixty-seven pages tends to produce a weariness long before its end

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is reached. The material of the book is sound enough, but it is badly co-ordinated; and written in a flippant manner which is not in harmony with the subject. The author should, at least, have ensured a measure of praise for the illustrations which accompany the text, but if the figures on pages 15, 44, 95, and 205, together with their explanatory letterpress, are to be taken as characteristic examples, then clearly even such praise will not be forthcoming. It is to be hoped that when next Mr Keith Henderson tackles the task of writing a popular book upon Prehistory he will do so in a less light-hearted fashion.

J. P. T. BURCHELL.

GRIECHISCHE DOLCH- UND SCHWERTFORMEN. EIN BEITRAG ZUR CHRONOLOGIE DER EUROPAISCHEN BRONZEZEIT. Von A. E. REMOUCHAMPS. E. J. Brill, Leiden. 1926. pp. 56, illustrations.

The author of this dissertation (presented at the University of Freiburg) observes in his introduction that the exclusively typological method in prehistoric research, while practicable for determining a scheme of relative chronology, is not sufficiently accurate for fixing absolute dates, and cites the different figures, ranging from 1800 to 800 B.C., suggested by authorities for the bronze leaf-shaped sword (Naue II) in Europe. He claims to bring the evidence of new methods to bear upon the problem.

The bulk of the book is concerned with descriptions and illustrations of daggers and swords, mostly of bronze, found in Greece and the Eastern Mediterranean. Types 1 to 6 include the Cypriote and Minoan daggers. In section II (types 7 to 11) are treated the Mycaenean swords until the appearance of the leaf-shaped sword, which is found, from the geometric period, of iron as well as of bronze, and remained in use to play an important part in Greek life down to the middle of the 6th century B.C. This statement is made on the strength of research published in the third section of the book, where illustrations are given, taken mostly from Greek vases, of swords which are placed in types 12 to 18. Details such as the sheaths and pommels of swords, and the manner in which they were worn and used, can often be learnt from such illustrations. Type 13, with solid haft, is referred to the 7th-6th centuries B.C. and is similar to a type common in the late Hungarian Bronze Age, the accepted dates for which, the author suggests, are much too high. Type 14, which is compared with the Mörigen or Rhône type of French archaeologists, first makes its appearance in Greek lands, or at least in the vase decorations, at the end of the 6th century B.C. Type 17 is the well known classical *machaira*.

In the recapitulation the origin of type 11 (Naue II) is discussed. One is surprised to find Asia Minor claimed as the 'Ursprungsland'. Though no examples from this region appear to be known the sword type is recognized—but the identification is very doubtful—from a hilt on a stele of the Hittite god Tesub (fig. 69) dating from the 10th century. From this it is argued that the sword originated either in the Hittite territory or in a neighbouring region! The period of the European Bronze Age in which this type 11 is found is fixed at the 13th century. This scarcely affects the dates given by Peake for his type D, to which the Egyptian swords of the time of Seti II belong: viz. 1300-1175 B.C. The case is different, however, with the date proposed for the Mörigen swords and for the beginning of the Hallstatt period (6th century B.C.) Evidence from western Europe for a long period of transition from bronze to iron is accumulating, but this concerns the continued use of bronze rather than the tardy introduction of iron. The proof of later dates for the Hallstatt culture is not to be found in the book under review, for the identification on which the whole argument is based is questionable.

ESTYN EVANS.

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EXCAVATIONS IN THE CABURN, NEAR LEWES. By ELIOT CURWEN, M.B., F.S.A. and E. CECIL CURWEN, M.B. Published in the *Sussex Archaeological Collections*, vol. 68. (1927).

The thorough examination of dwelling sites furnishes us with the bricks with which to rebuild the life of prehistoric peoples. In this respect dwelling sites are always of more importance than burial places. The Doctors Curwen have given us a clear and lucid report on the excavation of a fortified settlement at the close of the early Iron Age.

General Pitt Rivers opened 40 pits in 1877-8, and the remaining 99 were excavated by Doctors Eliot and Cecil Curwen at the end of 1925. The pits were mostly rectangular in shape although the soil was chalk. In this material it is usual to find them circular, and rectangular or triangular only in rocky soil as at Worlebury. The Caburn pits differed from the earlier pits at Fifeild Bavant and Swallowcliffe by being on the average of smaller dimensions, by being narrower at the bottoms than at the tops, and by having no ramps or steps. The iron implements found at The Caburn included a sword of La Tène II type, sickle, bill-hook, hammer, plough-share and latch-lifter, and some iron slag was found. Among the bronze objects were a split ring of adjustable size and a fibula of late first century type. A lead disc, probably a weight, an eyed bead of blue glass and a barrel-shaped bead of baked clay were found. Spindle-whorls were scarce, and there was only one sling bullet of baked clay, but beach pebbles were evidently used as sling-bullets. A weaving comb, a cheek-piece, and 43 loom-weights were discovered. The querns were apparently of the saddle type. Clay daub with the marks of wattle was found. The scarcity of pot-boilers is remarkable.

Before noticing the pottery, it is well to pause and praise the really excellent drawings by Mr Robert Gurd. Photographs of pottery are never quite satisfactory, and line illustrations depict only certain features, but Mr Gurd's drawings give us the best points of each, and also enable us to appreciate the actual texture. On the whole the pottery belongs to the periods of La Tène III and IV. Much of it resembles that from Glastonbury. Belgic and cordoned ware were found. It is remarkable however that only one bead rim was discovered, but the scarcity of flat-topped rims was to be expected. The solitary omphaloid base is further evidence that this feature disappeared during La Tène III. There were seven bases with cruciform designs scratched on their outsides after baking.

R. C. C. CLAY.

PRIMITIVE CULTURE IN ITALY. By H. J. ROSE. Methuen. 1926. pp. 233. 7s. 6d.

Books, like many other things, may be divided into the good, bad and indifferent. This book falls into the first and smallest category. It will appeal to three classes of readers, the classical scholar or historian, the anthropologist, and the general reader. The student of classical antiquity will find in it the origins of familiar things, the anthropologist will find in it the development and result of familiar things, while for the general reader it will afford an explanation of many hitherto incomprehensible customs.

Sir James Frazer and Miss Jane Harrison, among others, have shown what can be accomplished when the scholar and anthropologist are united in one person, but their example is all too seldom followed. Professor Rose opens his book with an elementary chapter on primitive customs and modes of thought, and then proceeds to show how

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the normal primitive customs of the Latin peoples, modified from contact with other folk such as the Etruscans and Greeks, developed or degenerated into the ceremonies and customs which hedged in the daily life of the Romans in classical times. His knowledge of Latin literature and history has enabled him to pick out the examples needed to illustrate his points from varied sources, while the comparatively small size of the book has to a great extent prevented that repetition of similar facts which, while adding to its scientific value, detracts from the readability of many books on human customs.

The whole of Europe, not to mention Africa and Asia, owes so much to the civilization handed on by the Romans that their own habits and origins must always be of interest to a large class of people. Be the fate of the classics what it may, no historian of medieval or even of modern times can escape from Rome, while allusions to the usages and customs of that ruling race confront us in our own literature and even in our daily lives, so that a full explanation of such institutions as the Vestals or the Paterfamilias is of great interest. Beside being a fit companion to Professor Rose's earlier work on Greek culture, this book will be a useful and stimulating addition to any library.

In the next edition the word *approbrium* on page 216 will doubtless be corrected. The habit of deferring what should be footnotes to the end of the chapter and of not even giving the page on which the note can be found, is most irritating.

D. P. DOBSON.

THE PULSE OF PROGRESS : including a sketch of Jewish history. By ELLSWORTH HUNTINGTON. With a chapter on climatic changes, by G. C. SIMPSON. Scribners. 1926. pp. viii, 341. 21s.

The name of Professor Ellsworth Huntington is associated with two important ideas, which he has done more than anyone else to demonstrate and to broadcast. The first of these is that during the historical period there has been neither a dead level of uniform climate nor a progressive change in any one direction, but a series of climatic fluctuations, so that large parts of the world have been now drier, now wetter, than they are at present. The second idea is that the level of human health and efficiency, and therefore the level of civilization, depend to a very large extent on the climatic environment. The combination of these two principles leads to the result that the history of civilization in any country can be in large measure accounted for as a history of its climatic changes. In the present volume Huntington combines this climatic factor in history with another, the influence of environment upon selection. Thus in a chapter on 'The Sifting Power of Cities', which provides much food for thought, he shows how the ablest individuals are attracted to the large cities, where they tend to die out. The opposite extreme is represented by the nomads of the arid regions, who are exposed to a peculiarly rigorous selection which only the hardest individuals can survive. Nomads are highly susceptible to small changes of rainfall, a period of drought causing great migrations leading to the conquest of the more settled and civilized regions, and a large part of history is made up of such migrations and conquests.

The best available record of climatic changes is given by the annual rings of growth of the Sequoias of California. It has been found that after allowance for age and other factors, the width of these rings is proportional to the rainfall, and as some

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of them are more than three thousand years old, they provide a unique record of climatic changes. Moreover in recent years, for which we have rainfall records, there is a sufficient similarity between fluctuations of rainfall in California and in the Mediterranean to permit the use of the curve of tree growth in the former as a standard of rainfall variation for the latter also. The outstanding fluctuations shown by the curve are a prolonged maximum of rainfall from 1200 to 200 B.C. and minima in the 13th century B.C. and the 7th, 8th, 13th and 15th centuries A.D.

The most striking part of the book deals with the author's interpretation of history. The example chosen for detailed discussion is the history of the Jews, and the interaction of climatic changes, contact with other peoples, wars, migrations; and the survival of the fittest is analysed in a series of brilliant but at times perhaps too imaginative chapters—'The origin of a great race', 'The purging of the Hebrews', 'The isolation of Judea', 'The biological antecedents of Jesus' and 'The dispersal of the Jews'. As history the book is unorthodox, and the argument runs on so smoothly, and the gaps in our knowledge are filled in so plausibly that the reader may be carried on from knowledge to reasonable inference, and from inference sometimes to speculation without realizing just when he passes the frontiers. An example is the treatment of inbreeding, which is usually considered to lead to degeneration, but Huntington argues very strongly that among families of high attainment, the reverse is the case, inbreeding preserving the high qualities of the race.

C. E. P. BROOKS.

RACE AND HISTORY. By E. PITTARD. Second edition. History of Civilization series. Kegan Paul, Trench, Trubner and Co. 1927. 21s.

This is a fair translation of the French work by Professor Pittard of Geneva, and one regrets that advantage was not taken of the second edition to correct some misspellings such as 'peninsular' used as a substantive, and to put into English form some sentences very literally translated. There is however no difficulty in following Professor Pittard's meaning and for that one may express gratitude.

There is little doubt that, could we but attain to real knowledge of the make-up of men, we should find a considerable correlation between physique and mental attributes, and this gives a perennial interest to the subject of Race and History. Professor Pittard is well known for his investigations and wide reading, and it is regrettable therefore that, in this book, he has given rather a hasty collection of notes than a deep study of the great questions involved. Here and there he gives suggestions that the specialist may ponder, and he criticizes rather pointedly the worship of the Nordic Race fashionable in certain quarters.

After a discussion of classification of races, the populations of the various continents are treated *seriatim* and, under Europe, separate chapters are given to countries or groups of countries. A bibliography of 300 works includes only a small sprinkling of contributions to the subject made since 1914 and the archaeological side is weakly represented, but a number of references to the work of the last few years are added as footnotes, several through the admirable enterprise of the translator. It is much to be wished that Professor Pittard had utilized the fine book by Professor Childe in the same series, or some corresponding study in order to give his thoughts their proper archaeological framework. Meditation upon Professor Vidal de la Blache's map of western Europe in his 'Tableau de la géographie de la France' would also have helped

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very greatly. A long section on the Jews reaches conclusions that seem of value, but one only wishes that Professor Pittard's experience had been used to evaluate interesting suggestions made public during the last ten years by Dr Redclyffe Salaman. The book does its best to smash a number of popular errors, and, on this critical side, it certainly does public service, as when it castigates us for our treatment of the natives of the Pacific.

H. J. FLEURE.

THE HISTORICAL GEOGRAPHY OF EARLY IRELAND. By WALTER FITZGERALD, M.A., F. R. MET. SOC. *The Geographical Teacher*, Supplement no. 1. George Philip and Son. [1926]. pp. 100, 28 maps and illus. 5s.

A study of the Historical Geography—that is to say, in the words of Prof. Roxby's introduction to the work before us, 'the evolution of man's relations to his physical environment'—of Ireland has long been needed, and this brochure of 100 pages is an attempt to fill the gap. Short though it is, it covers a wide expanse of scientific territory: too wide, perhaps, for its narrow limits, for the compression which its form compels makes it by no means easy reading. It deserves to be set forth in the more attractive form of a bound volume, secured otherwise than by inconvenient wire clips. Apart from these matters of external detail, the work is deserving of commendation as a well-considered treatise on a subject of no small complexity. In the first chapter, which is illustrated with well designed and selected maps, the regional divisions of the country are described with reference to climate, vegetation, degree of isolation, surface profile, and geological formation; the influence which these various elements of variation must necessarily have upon the distribution and well-being of a human population are set forth. In the following chapters, four in number, the effects of these physical constituents are traced in the distribution of various types of archaeological remains. We begin in chapter II with the Ice Age, during which there is no evidence of human occupation. We are not quite sure that Mr Fitzgerald is correct in tracing the dwellers on the raised beach at Larne to an immigration from the Mull of Cantire: the archaeological evidence is rather in favour of a colonization from the continent. The very instructive distribution of dolmens in the country receives due consideration, though we think the author would have been well advised to avoid 'Fir Bolg' as a specific ethnical appellation. A chapter on the Bronze Age follows in which due weight is given to the Irish initiative in European civilization, championed by Mr O. G. S. Crawford and, more recently, by the late Dr Walther Bremer. The importance of the gold trade is emphasized; but the author should have provided better illustrations of gold ornaments than those on p. 70. The Clonmacnois collar there figured is moreover La Tène, not Bronze-Age. Especially good is the short chapter which follows, on the Celtic period: maps trace the internal routes, the areas of Irish colonization, the wanderings of Celtic missionaries. Finally comes a chapter on the Scandinavian settlements, which is a very useful contribution to the study of a phase of history of no little obscurity. In conclusion we repeat our hope that the author will at some time expand his treatise into a full-dress book: it is worth it. Perhaps in doing so he will see his way to deleting that offensive and inaccurate word 'tribal' in referring to the pre-Norman population-divisions.

R. A. S. MACALISTER.

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APES AND MEN. By HAROLD PEAKE and HERBERT JOHN FLEURE. Oxford: The Clarendon Press. 1927. pp. vi, 138. 5s.

HUNTERS AND ARTISTS. By HAROLD PEAKE and HERBERT JOHN FLEURE. Oxford: The Clarendon Press. 1927. pp. vi, 154. 5s.

These two works, the first two of a projected series of four to be known as *The Corridors of Time*, deal with the development of Man. The aim of the series, as stated in the preface to the first volume, is to review the more general aspects of the detailed studies of anthropologists, geographers, archaeologists, and historians, with a view to correlation of their work. The close connexion between geographical and climatic conditions on the one hand, and the evolution and development of Man on the other, is very successfully indicated.

The first of these books consists in part of a series of short introductions to various branches of study necessary for an adequate appreciation of the main subject. An introductory chapter, recounting some primitive explanations of Man's origin, is followed by an 'Introduction to the Earth's Story', with an account of mountain-building processes, including reference to the work of Wegener, Joly, Suess, and others. The classification of periods here adopted places the Pleistocene and Holocene in the Tertiary era; this arrangement, and an inference that a classification including a Quaternary era, used by 'older geologists', is now obsolete, will scarcely pass unchallenged. 'A Glimpse of the Evolutionary Process', an excellent review of the modern attitude towards evolution, and an account of present-day ideas on the descent of Man, complete the introductory studies.

Chapters on the Ice Age, on lower palaeolithic implements, and on the known fossil remains of earliest Man considered to have been contemporary with the Ice Age, in effect complete the book, the final chapter being a chronological summary which rather labours points already driven home; of the subject matter of this summary much is unnecessary, and part rightfully belongs to previous pages.

The second work reviewed opens with a description of the retreat of the ice from Europe, and of the geographical and climatic changes accompanying the retreat; complementary chapters on upper palaeolithic man, his industries and his art, and chapters on mesolithic man occupy the latter part of the volume. The final chapter is a summary similar in form to that in *Apes and Men*. Catalogues of the better known skulls and skeletons of upper palaeolithic age and of mesolithic age are given in appendix form.

In these volumes the authors have produced an exceedingly interesting and dignified narrative, without the irregularities often attendant on a collaboration. Their work will be of great value, both as an epitome of present knowledge, and as a guide to new lines of thought, to all who are interested in the processes by which Man has arrived at his present state: it is, however, a little unfortunate that the speculative nature of some sections of the books, particularly of many of the correlations shewn in the various charts, is not more strongly stressed. Each volume has an index, and an extremely valuable feature is the inclusion at the end of each chapter of a list of authoritative books for fuller study.

Both volumes are very fully illustrated, and beautifully printed.

F. H. EDMUNDS.

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THE EVOLUTION OF THE ENGLISH FARM. By M. E. SEEBOHM, F. R. HIST. SOC. George Allen and Unwin, Ltd. 1927. pp. 364, with bibliography and index, and 70 figs. 16s.

This is a work of the first importance to all students of social and economic history. It is a veritable encyclopaedia of information relating to that all-important industry of our forefathers—agriculture and stock-breeding—in all its stages from the Stone Age to the present day, including a history of the development of the farmer's house and implements. But it is more than a catalogue of facts and figures; clear explanations are given of the way in which changes came about, and of the causes which led to these changes. Moreover, the book is copiously illustrated from contemporary and other sources, and well provided with footnote references and a bibliography.

The value of all this is enormously increased by the eminently readable style in which the authoress has so admirably succeeded in expressing herself. She exhibits just that delicate touch of dry humour, expressed in the selection of a word or a phrase, which makes tedium impossible, and the picture of the times she is describing is thrown into vivid relief by apt quotations from quaint old writers. The reader is made to feel at home on the very first page of the book, where he is introduced to the homeliness of the English farmyard, and is told—'All this should you love, the sights, sounds and smells—particularly the warm and comfortable smell of the cow-byre—if you are to take pleasure in what is written here.' It is quite in keeping with this spirit of homeliness that we are told later on that according to a contemporary writer the tom-cat of Norman times 'maketh a ruthful noise and a ghastrful when one proffereth to fight with another'.

One very happy feature of the book is the clear and concise account given of the English manorial system in its various stages and with its complicated machinery—an account free from unnecessary technicalities and extremely simple to follow. This book is, too, one of the first to attempt to collate the evidence relating to the agriculture of the prehistoric periods, and this the authoress does very successfully on the whole, though one is bound to say that one would have liked to see the early Iron Age treated along other lines. The attempt is made to deduce from the tenth century Welsh laws a picture of the agricultural economy of the Britons of the last five centuries before Christ, entirely overlooking the evidence obtained by Crawford and others regarding the prehistoric Celtic field-system, and also neglecting the possibilities of change and improvement that must assuredly have occurred during the ten to fifteen centuries that elapsed before Howel Dda codified his laws. To what extent were the customs of Howel's time influenced by those of the neighbouring English? In our opinion the use of the eight-ox plough team in Wales and elsewhere was almost certainly derived from the Saxons. In the next edition we should like to see this chapter on the early Iron Age very largely re-written.

But these defects are small in comparison with the value of the book as a whole.

E. CECIL CURWEN.

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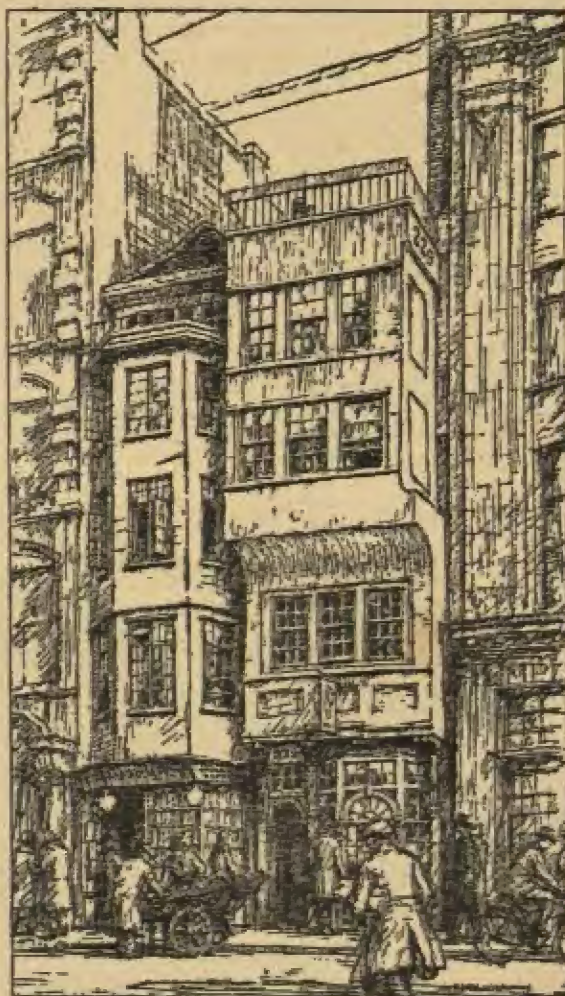
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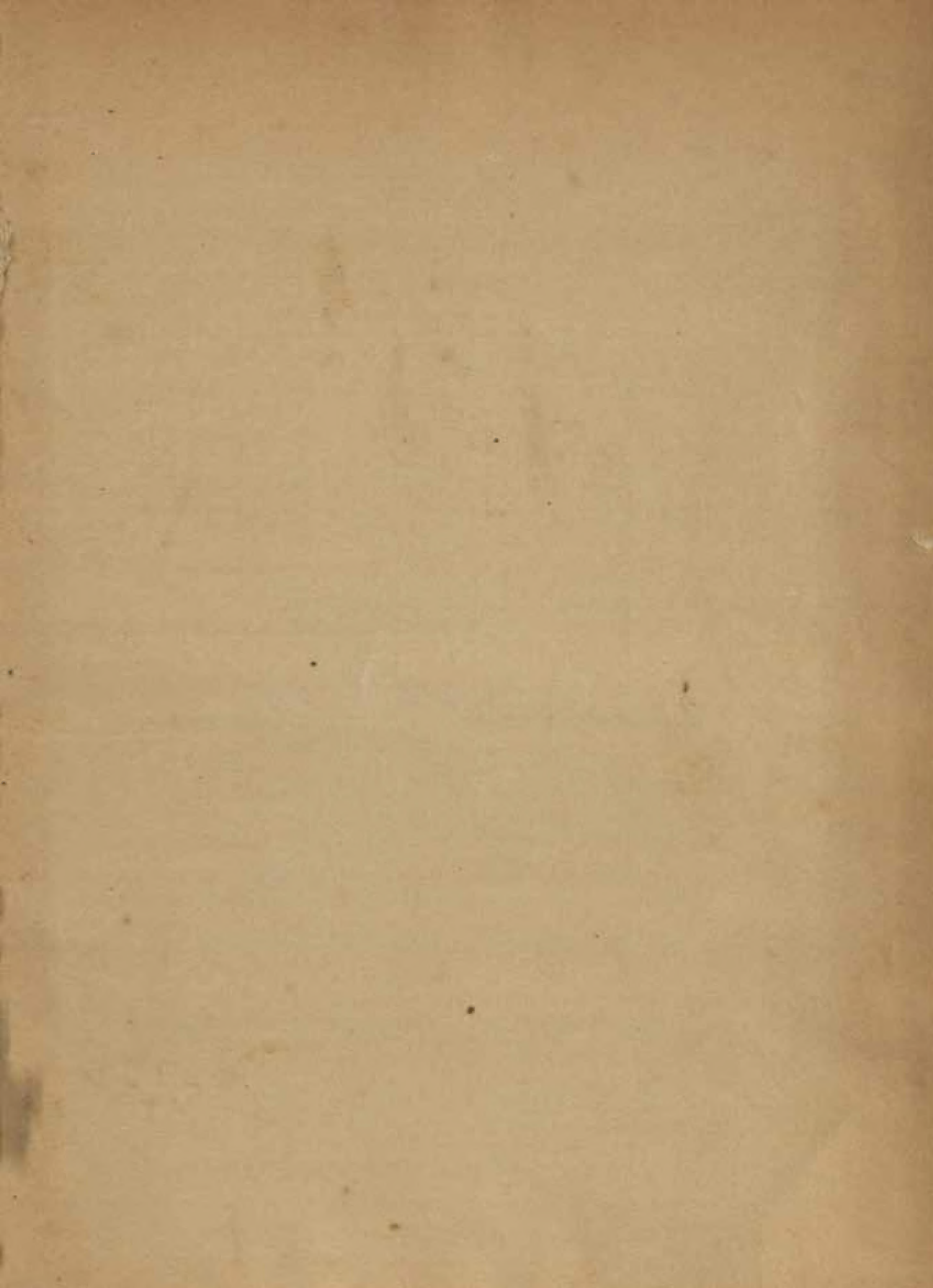
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